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RELEASED

Comptroller General

OF THE UNITED STATES

Need To Assess Federal Role In Regulating And Enforcing Pipeline Safety

In the United States there are approximately one and three-quarter million miles of pipelines subject to federal safety standards. These pipelines are used to move nearly all the natural gas and about one-half of the petroleum and petroleum products transported annually. The Department of Transportation is responsible for inspecting both interstate and intrastate pipeline operators, but the law allows the states to assume this responsibility for all or some of the intrastate operators. To assume this responsibility, the states must agree to enforce the federal safety standards.

The Department has not provided adequate inspection coverage of the interstate and intrastate pipeline operators for which it is responsible. Also, the Department does not have a viable means of requiring states to assume greater responsibility for intrastate operators or to improve their inspection programs. Most states indicated that they lack the resources needed to assume responsibility for all intrastate gas operators or the intrastate hazardous liquids operators which the federal safety standards will cover beginning sometime in 1984. In fact, some states have reduced their inspection activity, and a few are considering dropping out of the program. Therefore, the Department's inspection workload is likely to increase.

GAO is recommending that the Department present to the appropriate congressional committees alternatives for better aligning federal program responsibilities and inspection resources. GAO also is making recommendations for improving the Department's own inspection activities and its evaluations of the states' pipeline safety programs.



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GAO/RCED-84-102
JULY 10, 1984

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COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON D.C. 20548

B-214352

The Honorable Philip R. Sharp
Chairman, Subcommittee on Fossil
and Synthetic Fuels
Committee on Energy and Commerce
House of Representatives

Dear Mr. Chairman:

As requested in your September 8, 1982, letter, this report discusses the results of our review of the federal gas and hazardous liquids pipeline safety programs. The report recommends that the Secretary of Transportation present to the appropriate congressional committees alternatives for aligning federal program responsibilities with authority and resources. It also contains recommendations to the Secretary that would improve the Department of Transportation's own inspection activities and its evaluation of the states' pipeline safety programs.

As arranged with your office, unless you publicly announce its contents earlier, we plan no further distribution of this report until 7 days from the date of the report. At that time, we will send copies to the Secretary of Transportation, the Honorable Bruce F. Vento, and other interested parties and also make copies available to others upon request.

Sincerely yours,

A handwritten signature in black ink that reads "Milton J. Jordan".

Acting Comptroller General
of the United States

D I G E S T

Congressional concern over the risks of death, injury, and property damage resulted in the enactment of legislation in 1968 and 1979 to regulate the pipeline transportation of gases (i.e., natural gas, flammable gas, or gas which is toxic or corrosive) and hazardous liquids (i.e., petroleum, petroleum products, and anhydrous ammonia).

The Department of Transportation is responsible for establishing and enforcing safety standards for both interstate and intrastate pipeline operators. States may assume responsibility for enforcing the safety standards for all or some of the intrastate pipeline operators located within their borders. As a result, the Department is responsible for (1) enforcing the standards at interstate operators and those intrastate operators the states do not assume responsibility for and (2) monitoring the participating states to ensure that they are adequately enforcing the federal safety standards.

As of April 1, 1984, the Department had established federal safety standards for interstate gas and hazardous liquids pipelines and intrastate gas pipelines. The Department plans to extend the standards to intrastate hazardous liquids pipelines sometime later in 1984.

The Chairman, Subcommittee on Fossil and Synthetic Fuels, House Committee on Energy and Commerce, asked GAO to review the Department's overall performance in the enforcement and regulation of pipeline safety and the impact of budget cuts and staff vacancies on the program.

THE DEPARTMENT IS NOT MEETING
ITS INSPECTION GOAL

The Department's goal is to perform a comprehensive annual inspection of each pipeline operator under its jurisdiction. In 1983 this included about 360 interstate gas and hazardous liquids operators, 290 intrastate gas pipeline operators and 16 liquefied natural gas facilities. GAO's analysis of the Department's inspection records showed that 24 percent of these pipeline operators received comprehensive inspections in 1981 and 17 percent in 1982. Some operators had been inspected only once in a 5-year period, while others had never been inspected. (See pp. 13 to 17.)

In addition, the Department is responsible for small groups of intrastate gas operators, such as master meter operators (individuals or companies who operate small gas systems in connection with the rental or leasing of multi-unit facilities such as mobile home parks), but has not been inspecting them on a regular basis. Department officials said that because of inadequate resources these operators are inspected only when a complaint is received, an accident occurs, or a specific request is made. As of September 30, 1983, the Department reported that there were about 27,400 master meter operators under its inspection jurisdiction. (See pp. 17 to 22).

FEDERAL RESPONSIBILITIES NEED TO BE
BETTER ALIGNED WITH THE DEPARTMENT'S
RESOURCES

On April 2, 1984, the Department had 17 regional office inspectors. GAO believes that this is insufficient to fully carry out the Department's current inspection and enforcement responsibilities. Moreover, state participation in the program is voluntary; therefore, the Department cannot require the states to maintain their current level of inspection activity, assume responsibility for additional intrastate pipelines, and/or correct deficiencies in their programs.

Currently, the states have assumed responsibility for most intrastate gas pipeline systems but there are still about 28,000 intrastate gas systems under the Department's jurisdiction. While a few states have expanded their gas pipeline safety inspection

programs in recent years, 15 states experiencing staffing and/or funding constraints have reduced their inspection activities and 4 states have said that they may consider dropping out of the program. In addition, many states have indicated that because of resource limitations they do not plan to participate in the federal/state program for regulating intrastate hazardous liquids pipelines scheduled for implementation in 1984. To the extent the states drop out of the existing gas program and do not accept the new hazardous liquids program responsibility, the Department will have to assume the additional inspection workload. (See pp. 58 to 65.)

The Department may also have to assume additional inspection responsibilities since it cannot force the states to improve their pipeline safety programs. For instance, the Department performs an annual evaluation of each state's inspection and enforcement program. While it has had moderate success in getting states to make program changes as a result of these evaluations, it cannot require the changes to be made. If changes are not made to conform to program requirements, the Department can (1) withdraw the state's certification and assume jurisdiction over all the state's operators or (2) withhold federal funds--the Department provides up to 50 percent of the states' pipeline safety program costs. If federal funds were withheld and the state's inspection activity seriously decreased, the Department might have to withdraw the state's certification and assume jurisdiction over all the state's operators. Therefore, either action could place a further demand on the Department's already limited inspection resources. (See pp. 65 and 66.)

Considering the Department's resource limitations, present inspection workload, possible future increases in its workload, and its lack of a viable means to get states to increase or improve their program participation, GAO believes that the Department, with input from the states, should consider alternatives to the present program that would better align state and federal responsibilities with funding and staffing levels. (See pp. 66 and 67.)

FEDERAL INSPECTIONS CAN BE IMPROVED

Despite current staffing and resource limitations, GAO believes that the Department can take certain actions that will make its inspection activities more efficient. For example, the Department could

- improve the efficiency of its inspection workforce by placing more reliance on the interstate operators to ensure the safety of their pipeline systems. This could reduce the level of federal inspection needed at those operators and allow the Department to concentrate on other enforcement priorities. Before this can be done, however, the Department would have to change its regulations and ensure that each interstate operator develops an effective and reliable quality assurance program. Because this could be costly to the Department and some operators, GAO believes that the Department should make a cost-benefit evaluation to determine if such a program change would be worthwhile. (See pp. 23 to 25.)

- improve the management of its inspection program by developing more data on inspection workload and the extent of inspection coverage being provided. Because of data problems, program managers do not currently have information that would be useful in (1) determining the adequacy of the Department's inspection coverage and (2) distributing available inspection resources to areas where they would be more useful. (See pp. 25 to 29.)

These changes alone, however, will not be enough to allow the Department to adequately enforce federal safety standards at all interstate and intrastate operators under its jurisdiction. Additional resources may still be needed unless, as previously suggested, changes are made in the alignment of federal and state inspection and enforcement responsibilities.

DEPARTMENT'S MONITORING OF STATE PROGRAMS COULD BE IMPROVED

The Department is responsible for ensuring that the states' pipeline safety programs are adequate to assure operator compliance with the federal safety standards. In reviewing

the Department's guidelines for state participation in the program and its annual evaluations of the states' programs, GAO found that

- some important program requirements either have not been adequately defined or need to be updated. As a result, the federal inspectors have to make subjective judgments as to the adequacy of the states' programs in these areas, which in turn can result in an inconsistency in the evaluations performed by the Department's 5 regional offices. (See pp. 36, 37, and 39 to 43.)
- the Department's reviews of state inspection workload and activity data did not identify some errors and inconsistencies in the data. Therefore, the data being provided to the Department's program managers and the Congress is of questionable value for evaluating state programs. (See pp. 37 to 39.)
- the annual monitoring visits could be improved if the Department obtained more and better data for measuring a state agency's performance. (See pp. 34 to 36.)

ADDITIONAL PIPELINE FACILITIES MAY NEED REGULATING

A number of pipeline facilities and commodities transported by pipeline are not currently being regulated by the Department. These include: rural gas gathering lines, gas service lines, hazardous liquids storage facilities, and various commodities such as liquefied carbon dioxide, ammonium hydroxide, ethanol, and methanol. These may have associated safety problems and may need to be regulated, depending upon the degree of hazard.

The Department, however, does not currently have sufficient information to decide whether these pipeline facilities and/or commodities should be regulated. Therefore, additional information should be collected to decide whether regulation is warranted. (See pp. 48 to 55.)

RECOMMENDATIONS TO THE SECRETARY OF TRANSPORTATION

Because of the Department's difficulty in carrying out its responsibilities and the reluctance of many states to increase their role,

GAO believes that the pipeline safety program needs to be reassessed. Accordingly, GAO recommends that the Secretary of Transportation direct the Administrator, Research and Special Programs Administration, to develop and present to the appropriate congressional committees alternatives for redefining the federal role and responsibilities for assuring the safety of intrastate pipelines, including the hazardous liquids pipelines.

These alternatives should propose different combinations of federal and state responsibilities for ensuring the safety of intrastate pipelines. Each alternative proposed should include (1) the role and responsibility of both the Department and the state agencies, (2) a discussion of the trade-offs between the alternatives in terms of safety risks, and (3) the identification of any legislative changes that would be associated with each alternative.

Each alternative should also be accompanied by (1) estimates of the federal and state resources that would be required to carry out their responsibilities and (2) analysis of the impact each alternative would have on inspection activity. Since any change made to the federal responsibilities would affect the states, the Administrator should solicit input from the states. (See p. 68.)

In the meantime, there are a number of actions the Department can take that would not only improve its current inspection program but may also be applicable to any new program that might be developed as a result of our reevaluation. In this regard, GAO is recommending actions which (1) would improve the Department's management of its inspection activities (see p. 31) and its oversight of the states' pipeline safety programs (see pp. 45 and 46), and (2) are needed to determine whether there are sufficient hazards involving personal injury or environmental damage to warrant regulation of certain gas and liquid pipeline facilities or commodities not presently covered by the federal regulations (see pp. 55 and 56).

AGENCY COMMENTS AND GAO EVALUATION

The Department agreed to reevaluate the federal and state roles in ensuring the safety of pipelines. (See p. 69.)

The Department said that it could not a priori agree that the level of national inspection effort is inadequate without first reexamining its inspection goal giving consideration to balance needed between public safety and resource requirements. GAO agrees with the Department's proposed action to reexamine its goal and recognizes that such a reevaluation could result in requiring inspections less frequently than once a year. GAO still believes, however, that the Department has not provided adequate inspection coverage because (1) some operators under its jurisdiction have never been inspected, and (2) some were inspected only once in the 5-year period covered by GAO's review which is substantially less than its annual inspection goal. In addition, the Department's regional office chiefs said that they did not have sufficient resources to meet the goal. (See pp. 31 and 32.)

It also took exception to GAO's conclusion that the Department does not have sufficient information to make decisions as to the necessity for expanding regulatory coverage to additional pipeline facilities. The Department said that it believes that information currently in hand or readily available provides a sufficient basis for making decisions as to the necessity for expanding regulatory coverage to additional pipeline facilities. Because of the insufficiency of the data available to the Department, GAO does not agree. Reliable data is needed on the number and kinds of pipelines and facilities that are not currently regulated and the risks involved with each. The Department does not have this data and is relying primarily on the views of the pipeline industry. (See pp. 56 and 57.)



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ABBREVIATIONS

GAO	General Accounting Office
HLPSA	Hazardous Liquid Pipeline Safety Act
LNG	Liquefied natural gas
LP gas	Liquefied petroleum gas
NGPSA	Natural Gas Pipeline Safety Act
OOE	Office of Operations and Enforcement
RSPA	Research and Special Programs Administration

CHAPTER 1

INTRODUCTION

The Department of Transportation is responsible for safety regulation of gas and hazardous liquids pipeline operators in the United States. These pipelines total about one and three-quarter million miles--1.5 million gas and more than 225,000 hazardous liquids--and transport more than one-half of this Nation's energy supply. Natural gas, which supplies about 30 percent of the country's energy requirements, is transported almost exclusively by pipeline. Over the past decade pipelines also moved nearly one-half of the 2 billion tons of petroleum and petroleum products transported annually.

Each year there are hundreds of thousands of pipeline leaks, most of which are discovered and repaired before major incidents occur. However, a number of these pipeline failures result in deaths, serious injuries, and considerable property/environmental damage. The federal pipeline safety regulations require pipeline operators¹ to report to the Department only those failures that meet certain prescribed criteria, such as those which cause death or injury requiring hospitalization, result in a fire or explosion, or cause property damage estimated at \$5,000 or more. The operators also reported 1,580 gas pipeline failures in 1983. Some of these failures caused 12 fatalities and 245 injuries. They also reported 161 hazardous liquids pipeline failures. Some of these failures caused 6 fatalities and 9 injuries, an estimated commodity loss of 384,670 barrels, and property damage of nearly \$5.5 million.

Overall transportation statistics indicate that pipeline transportation is relatively safe when compared to other modes of transportation. There are, however, many individual pipeline systems of diverse size, age, composition, and overall quality, as well as thousands of pipeline operators of varying capabilities. Therefore, concerns exist over the dangers posed by the toxic, flammable, and highly combustible substances which are carried through the pipelines at relatively high pressures, often near or through highly populated areas.

Appendix I lists gas and liquid pipeline accident and casualty statistics for the period 1973-83. Appendix II provides a breakout of product losses resulting from liquid pipeline accidents, by commodity, for the period 1979-83.

¹Operator means a person who owns or operates pipeline facilities. Person means any individual, firm, joint venture, partnership, corporation, association, state, municipality, cooperative association, or joint stock association, and includes any trustee, receiver, assignee, or personal representative thereof.

PIPELINE SAFETY PROGRAMS

Two pipeline safety programs exist--one for gas pipelines and the other for hazardous liquids pipelines. The gas pipeline program covers those pipeline facilities used to transport natural gas, flammable gas, or gas which is toxic or corrosive. The liquid program covers petroleum, petroleum products, and anhydrous ammonia (a nitrogen/hydrogen-based compressed liquefied gas used in fertilizer) pipeline facilities.

Gas program

According to the Department, in the United States there is a gas pipeline network made up of more than 2,750 operators and 1.5 million miles of pipeline--including almost 37,000 miles of gathering lines, 307,000 miles of transmission lines, 812,000 miles of distribution mains, and 406,000 miles of gas service lines.² In addition, the Department indicates that there are 106 liquefied natural gas (LNG) facilities, an estimated 80,900 master meter operators,³ and an unknown number of liquefied petroleum (LP) gas operators⁴ which are subject to the federal safety standards.

Prompted by concern over the risks of death, injury, and property damage inherent in the transportation of natural gas by pipeline, the Congress enacted the Natural Gas Pipeline Safety Act of 1968 (NGPSA) (49 U.S.C. 1671). NGPSA required the Secretary to establish, by regulation, minimum federal safety standards for the transportation of gas and for gas pipeline facilities. Title I of the Pipeline Safety Act of 1979 amended NGPSA to provide for comparable standards for LNG facilities.

²Gathering lines bring the gas from wells to the transmission pipeline. The transmission lines move the gas long distances to a terminal, refinery, or distribution center. Gas distribution systems consist of distribution mains and service lines. The mains carry gas to the service lines which connect the customer's building and the distribution mains. Drawings illustrating the common components of a natural gas pipeline system and a gas distribution system appear at the end of this chapter.

³These are individuals or companies that operate small gas systems in connection with the rental or leasing of multi-unit facilities such as mobile home parks, garden and high rise apartments, shopping centers, and university complexes. These operators purchase metered gas from outside sources for resale to the ultimate consumer.

⁴A liquefied petroleum gas operator has a pipeline distribution system, including a storage tank and vaporizer, that is used to transport gas to its customers.

The Department is responsible for regulating both interstate and intrastate gas pipeline operators but allows the states to voluntarily assume this responsibility for the intrastate pipeline facilities located within their borders. If they do, the states also may obtain federal financial assistance for up to 50 percent of their program costs. States have established agencies, usually within their utility regulatory commissions, to administer the program. In 1983, 51 state agencies (including agencies in the District of Columbia, Puerto Rico, and two agencies in Florida) participated in the federal gas pipeline safety program. Alaska discontinued its program in 1978 and South Dakota did likewise in 1980.

The Department also has authorized 12 state agencies to act as agents of the Department for the purpose of inspecting the interstate gas transmission facilities located within their borders. In addition, the Department occasionally authorizes a state to act as a temporary agent to investigate a specific operator or accident when the operator (interstate or intrastate) is under federal jurisdiction.

The extent of authority assigned to the states varies. In 1983, 48 of the 51 participating state agencies were authorized to assume both inspection and enforcement authority over intrastate gas facilities. The remaining 3 state agencies--in Delaware, Massachusetts, and New Jersey--were authorized to conduct inspections to determine operator compliance with the federal regulations but probable violations were to be reported to the Department for federal enforcement. The state agencies acting as agents also must submit probable violations to the Department for enforcement.

The Department's records indicate that state agencies had assumed jurisdiction over about 2,350 of 2,750 gas system operators, 90 of 106 LNG facilities, and about 53,500 of an estimated 80,900 master meter operators subject to the federal safety standards. This means the Department is responsible for about 410 gas system operators, 16 LNG facilities, and an estimated 27,400 master meter operators. The following table indicates the number of state jurisdictions, including the District of Columbia and Puerto Rico, that had accepted full or partial responsibility for the various categories of gas pipeline operators as of December 31, 1982. (This is the latest data available from the Department.)

<u>Category of operator</u>	<u>Extent of jurisdiction</u>	
	<u>full</u>	<u>partial</u>
	(number of states)	
Gathering lines, non-rural (intrastate)	26	1
Transmission lines		
--interstate (agents)	12	
--intrastate	49	1
Distribution lines (intrastate)		
--privately owned, public utilities	50	
--privately owned, not public utilities	31	2
--municipally owned	32	3
--other publicly owned	22	1
--master meter	30	
--liquefied petroleum gas	31	7

During calendar year 1982, state agencies reported that their 240 inspection personnel expended a total of 21,500 staff-days performing 4,147 inspections of gas operators. During the same period, the Department's regional office inspection personnel (14 as of December 31, 1982) expended 319 staff-days inspecting 58 interstate and 136 intrastate gas operators. The regional office personnel also spent 200 staff-days monitoring the state agencies' gas pipeline safety programs to ensure that each state program is adequate to assure operator compliance with the federal safety standards.

Liquid program

The Department estimates that there are more than 225,000 miles of hazardous liquids pipelines. Of the total, about 72 percent are interstate lines and 28 percent are intrastate lines. The Department's records also indicate that these pipelines are operated by 235 interstate and 293 intrastate pipeline operators.

The Hazardous Liquid Pipeline Safety Act of 1979 (HLPSA) (49 U.S.C. 2001) granted the Department substantial new regulatory and enforcement authority over hazardous liquids pipelines which mirrors that granted by the NGPSA for gas pipelines. Prior to that time, the Department performed inspections of interstate liquid pipelines using authorities contained in the Transportation of Explosives Act (18 U.S.C. 831-835) but there had been no federal regulation of intrastate liquid pipelines. HLPSA specifically provides for

- the establishment of minimum federal safety standards governing the interstate and intrastate transportation of hazardous liquids by pipeline,

- the establishment of a program of federal/state cooperation in regulating intrastate hazardous liquids pipelines and financial assistance to participating state agencies, and
- civil and criminal penalties for violations of the federal safety standards.

In July 1981 the Department amended its safety standards for hazardous liquids pipelines to conform the standards with and reflect provisions contained in HLPESA but the amendment applied only to interstate pipelines. In 1982 the Department expended 185 staff-days inspecting 70 of the 235 operators of interstate hazardous liquids pipelines.

While HLPESA provides authority for the establishment of a federal/state program for regulating intrastate hazardous liquids pipelines, this program is not yet in place. The Department's proposed regulations were published in the Federal Register on March 26, 1984, but program officials do not expect the program to be implemented before the end of 1984. A few states have their own programs but these are based on state laws and are not subject to federal monitoring or eligible for federal financial assistance as are the states' gas pipeline safety programs. When the federal regulations are issued, however, these state programs become subject to Departmental approval.

DEPARTMENTAL RESPONSIBILITIES

The Research and Special Program Administration's (RSPA's) Materials Transportation Bureau is responsible for administering the Department's gas and liquid pipeline safety programs. Pipeline safety functions assigned to the Bureau include developing, issuing, and enforcing regulations for the safe transportation of gases and hazardous liquids by pipeline; managing federal grants to aid states in conducting intrastate pipeline safety programs and monitoring the performance of those state agencies participating in the program; collecting, compiling, and analyzing pipeline safety and operating data; and conducting training programs for government and industry personnel in the application of the federal pipeline safety regulations.

For fiscal year 1984, the Department allotted the Bureau 45 of the 48 positions authorized by the Congress and \$7,464,000 for pipeline safety. This included \$3,319,000 for program operations, including salaries and administrative expenses; \$3.5 million for grants-in-aid to participating state agencies; and \$645,000 for pipeline safety technology research and development. As discussed in Appendix III, funding levels for prior years were about \$7 million in 1983, \$5.6 million in 1982, \$6.9 million in 1981 and \$5.8 million in 1980.

The Bureau's Office of Operations and Enforcement's (OOE) Pipeline Safety Enforcement Division (4 positions) and 5 regional offices (21 positions--located in Washington, D.C.; Atlanta, Georgia; Kansas City, Missouri; Houston, Texas; and Denver, Colorado) are responsible for inspecting the pipeline operators

under federal jurisdiction and monitoring the programs of the 51 state agencies participating in the pipeline safety program. OOE's Information Services Division (2 positions) is responsible for preparing and distributing documents and literature concerning pipeline safety activity and manages a training program for government and industry personnel.

The Office of Pipeline Safety Regulation (12 positions) develops, maintains, and interprets the pipeline safety regulations. The Office of Regulatory Planning and Analysis (2 positions) is responsible for the automated pipeline safety data system and performs special studies to support regulatory development projects. The remaining 4 positions are in the offices of the Bureau's Director (1) and Executive Staff (1), OOE's Director (1), and the Alaska Natural Gas Pipeline Project (1). Program staffing and funding are discussed in more detail in chapter 2 and appendix III.

PREVIOUS STUDIES

In our report entitled Pipeline Safety--Need For A Stronger Federal Effort, CED-78-99 dated April 26, 1978, we concluded that the Department needed to correct a number of significant problems and weaknesses, including a need to

- strengthen state pipeline safety programs,
- improve its own operator inspection efforts, and
- give increased attention to staffing requirements.

The Department responded that the report, with a few exceptions, identified federal actions which might significantly enhance public safety and that the Department had actions underway to accomplish the identified objectives. In our current review, however, we found that the problems listed above continue to exist.

The Department's Office of Inspector General has issued several reports on the Pipeline Safety Program, two of which are particularly relevant. In its report entitled Review of OOE Direct Inspection and Enforcement Activities--Southwest Region, Report No. R6-RS-1-066 dated March 20, 1981, the Inspector General reported that OOE's Southwest Region was providing insufficient inspection coverage of gas and liquid pipeline operators subject to federal jurisdiction and, as a result, safety violations remained unreported and uncorrected for lengthy periods. The Inspector General recommended that the region chief (1) determine the staffing required to carry out its direct inspection responsibilities in a comprehensive, effective, and timely manner, and (2) formally advise headquarters of the region's staffing requirements so that they could be incorporated into the agency's budgetary and staffing processes.

A second review was undertaken by the Inspector General to expand on the scope of the first. It covered two additional OOE

regions--the southern and central--and also included a review of the agency's monitoring of the state pipeline safety programs. In the report, entitled Final Report on Audit of Selected Aspects of the Gas Pipeline Safety Program, RSPA, Report No. R6-RS-3-005, dated December 17, 1982, the Inspector General concluded that RSPA must (1) ensure that federal responsibilities are carried out with regard to inspection and enforcement activities of intrastate operators under federal jurisdiction and (2) take a more active role in strengthening the states' programs for enforcing federal pipeline safety standards. In this report, however, the Inspector General stated that the addition of more personnel was not the solution and that the agency must look to other innovative alternatives, including legislative changes, if appropriate, to improve the effectiveness of the pipeline safety program. And, consistent with other initiatives of the Administration, program responsibilities should be shifted to the states as much as possible.

In responding to the December 1982 Inspector General report the RSPA administrator disagreed, stating that he believed the program to be entirely consistent with Administration policy and philosophy regarding regulatory reform and federal/state relationships. He also believed that the agency's program evaluations and action priorities are based on a clear understanding of the safety problems involved and efficient use of available resources.

OBJECTIVES, SCOPE, AND METHODOLOGY

By letter dated September 8, 1982, the Chairman, Subcommittee on Fossil and Synthetic Fuels, House Committee on Energy and Commerce asked us to undertake a review of the federal gas and liquid pipeline safety programs. In accordance with the request, our objectives were to evaluate the Bureau's overall performance in the enforcement and regulation of pipeline safety programs and determine how budget cuts and staff vacancies have impacted on the program.

This review concentrated on OOE's program for inspecting those pipeline operators under federal jurisdiction and its monitoring of the state agencies' inspection programs. Our review of OOE's efforts to get the pipeline operators to take timely and adequate actions to correct safety violations found during its inspections revealed no significant problems. In fact, there appears to have been considerable improvements since 1980 when OOE implemented the enforcement procedures contained in Part 190, Title 49 of the Code of Federal Regulations. Part 190 enforcement authority includes the use of civil penalties, compliance orders, warning letters, or hazardous facility orders dependent upon the nature, circumstances, and gravity of the violations, the degree of culpability of the operator, and any history of prior violations by the operator. If a penalty is determined to be inappropriate, a compliance order is issued to the operator requiring specific actions to bring the pipeline system into compliance with the regulations. When the nature of the violation warrants a less stringent compliance action, a warning letter is sent to the operator. A hazardous facility order is issued to effect immediate corrective action in situations of public hazard.

Two program areas that were identified as possibly warranting further review were the automated pipeline safety data system and the federal pipeline safety regulations. Reviewing these complex areas, however, would have extended the review completion date beyond that requested by the subcommittee. For these reasons, the subcommittee's office agreed that we not include these areas in this review.

We did not determine if OOE's inspection goal--annual inspections of each operator--is appropriate. The possibility exists that some types of operators do not need to be inspected every year. However, as discussed in chapter 2, the Department is not adhering to this goal. In fact, some types of operators under OOE's jurisdiction were inspected only once during the past 3 to 5 years while others had never been inspected. Therefore, we felt that the validity of the inspection goal would not impact on our ability to evaluate the adequacy of the Department's inspection program. We did attempt, however, to determine why the Department had not adhered to its goal and if there were efforts underway to either change the goal or improve compliance with the goal.

Our review of OOE and state agency records on individual pipeline operator inspections was limited to a random statistical sample of their calendar year 1982 inspections. No attempt has been made to project the results of this review of inspection records but observations are presented on the types of OOE inspections and extent of inspection coverage--see chapter 2.

We conducted much of our review at RSPA headquarters in Washington, D.C., and at OOE's 5 regional offices. We also visited 9 state pipeline safety agencies (in California, Illinois, Iowa, Kansas, Massachusetts, Nevada, New York, Washington, and Wyoming) and sent a questionnaire to all 51 state agencies that participated in the federal-state cooperative program in 1983.

Seven of the 9 state agencies we visited were selected as part of our evaluation of OOE's monitoring of the state programs. We visited the other 2 states solely to obtain information on LNG inspections. The 7 states are located in OOE's central and western regions and were selected based on the results of the OOE regions' calendar year 1982 monitoring visits--3 states were selected from among those state agencies that the OOE regions determined had the better programs and 4 were from among those states the OOE regions rated the lowest. Most LNG facilities are located in OOE's eastern region and are under state agency jurisdiction, so we visited 2 eastern region states with significant LNG programs to obtain information on their LNG inspection activities.

The questionnaire sent to the 51 state agencies addressed federal and state funding of the program, state agency staffing and inspection workload, state inspection and pipeline operator personnel training, and the federal pipeline safety regulations. Only Puerto Rico did not respond to the questionnaire.

We reviewed applicable legislation; implementing federal regulations; pertinent Department of Transportation policies and procedures; OOE and state agency inspection, personnel training, and financial records; OOE monitoring reports on state pipeline safety programs; and other pertinent data.

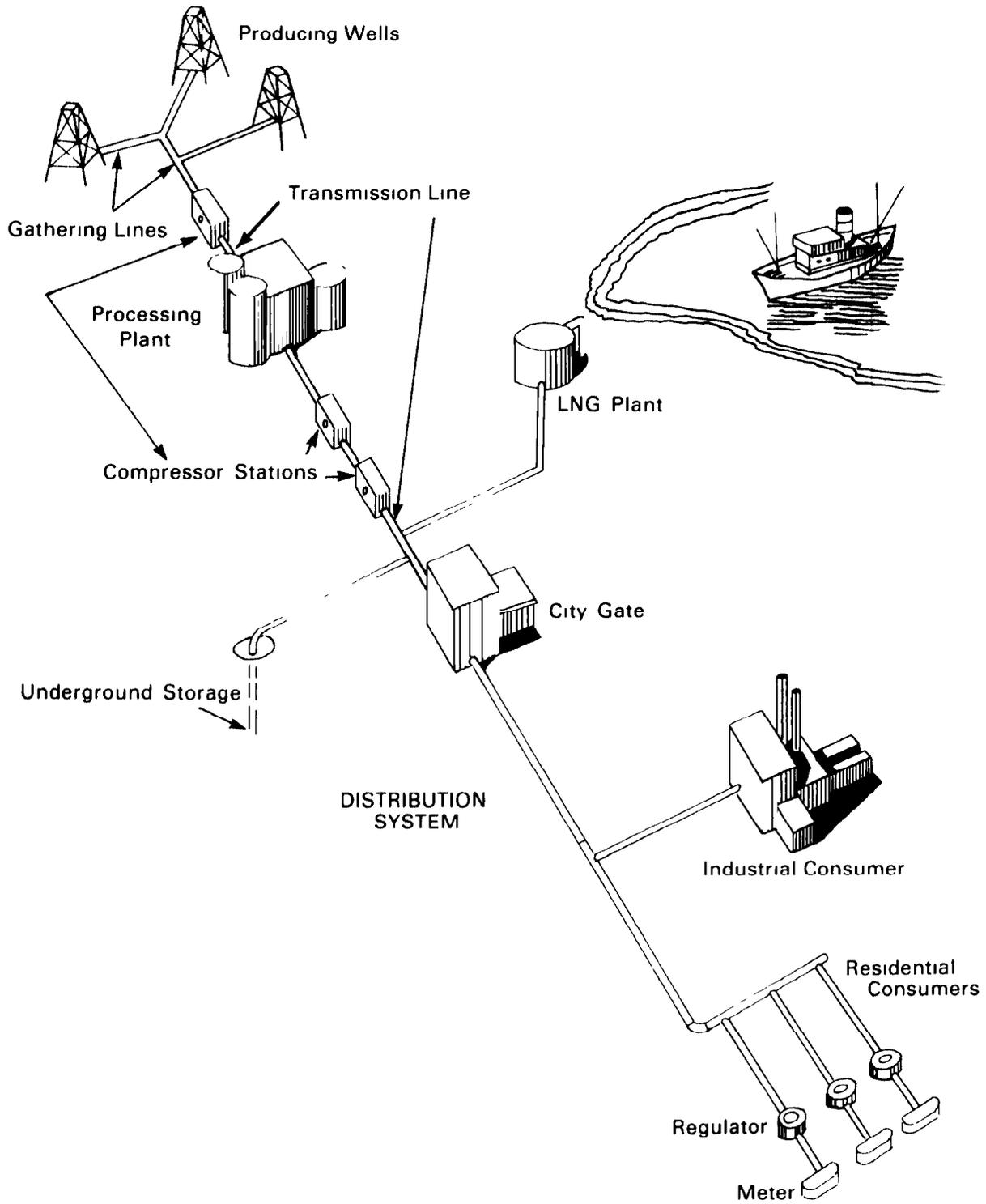
We interviewed RSPA officials in Washington and at all 5 of OOE's regional offices as well as state utility commission and pipeline safety inspection personnel in the 9 states we visited to obtain their views on matters discussed in this report. We also discussed program training issues with the Program Manager for Pipeline Safety Programs at the Department's Transportation Safety Institute in Oklahoma City, Oklahoma. The Institute conducts courses on pipeline safety for federal, state, local government, and industry personnel.

We discussed the review with representatives of the Congressional Budget Office, Congressional Research Service, Office of Technology Assessment, and the Department's Office of Inspector General. At the Inspector General's regional offices in Fort Worth, Texas; Kansas City, Missouri; and Atlanta, Georgia we also reviewed the workpapers and draft reports for the two Inspector General reviews of the pipeline safety program discussed on pages 6 and 7.

We discussed our questionnaire with a representative of the National Association of Regulatory Utility Commissioners prior to sending it to the state agencies (most state agencies are under the jurisdiction of the states' utility regulatory commissions which are members of the Association). We also obtained the results of a questionnaire which the Association sent to the state agencies in July 1983 requesting data on state program costs and state inspector salaries and discussed the pipeline safety program with the Chairman of the Association's Subcommittee on Pipeline Safety.

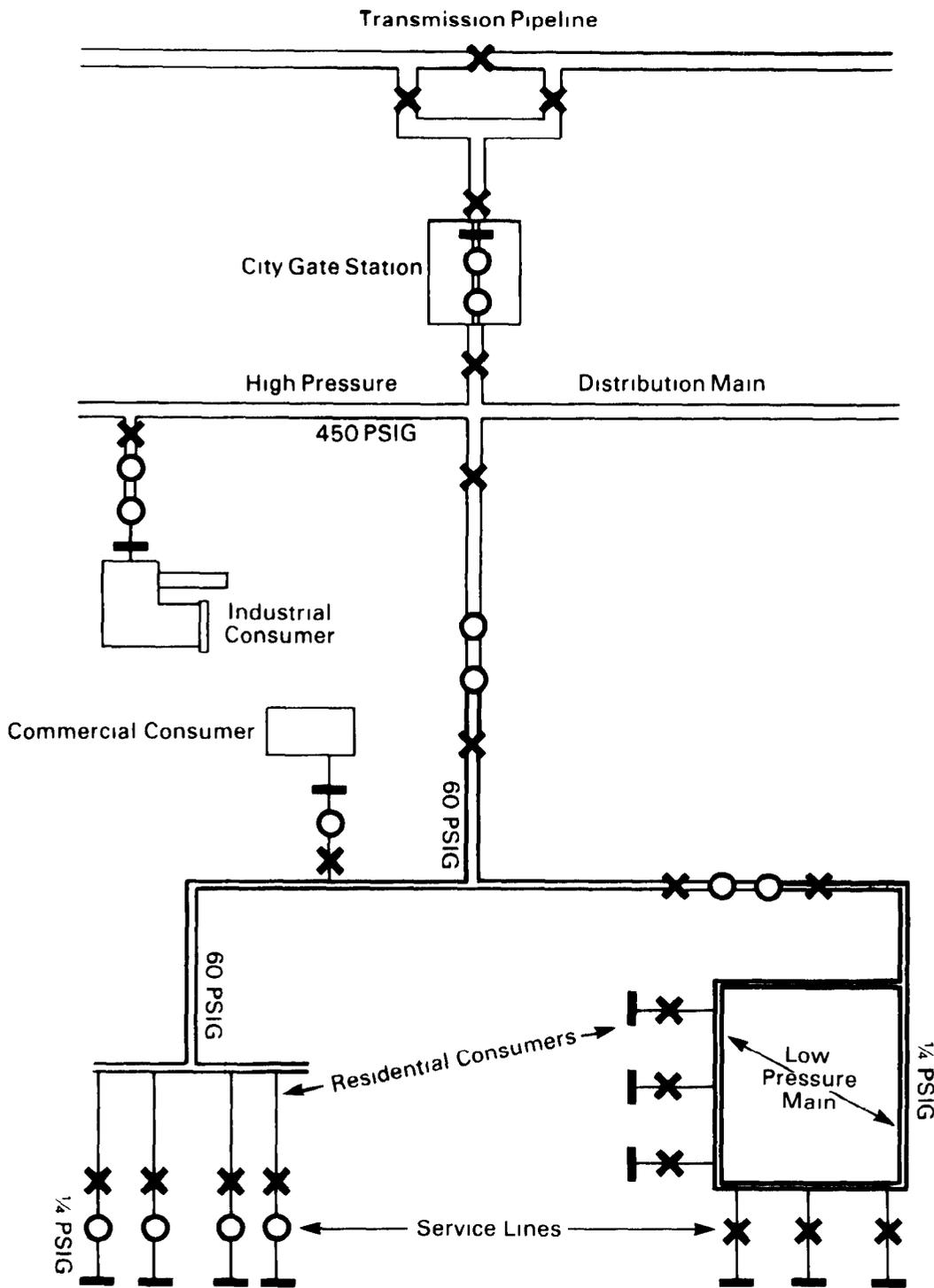
We made our review in accordance with generally accepted government auditing standards except that we did not evaluate (1) the Department's goal of annual inspections, (2) its automated pipeline safety data system, and (3) the federal pipeline safety regulations. Our review generally covered program activities for calendar years 1978-82, with calendar year 1983 activity considered to the extent possible. However, the most current data the Department had on federal and state inspection activity was for the year ending December 31, 1982.

NATURAL GAS PIPELINE SYSTEM



Source Department of Transportation

GAS DISTRIBUTION SYSTEM



-  Regulator-reduces and limits gas pressure
-  Valve shuts off gas supply
-  Meter-measures the volume of gas transferred
- PSIG pounds per square inch gage pressure

Source Department of Transportation

CHAPTER 2

NEED TO IMPROVE INSPECTION COVERAGE OF PIPELINE OPERATORS UNDER FEDERAL JURISDICTION

The Office of Operations and Enforcement (OOE) has been unable to perform a comprehensive inspection¹ of each pipeline operator under its jurisdiction annually as is its goal. In fact, many interstate gas and liquid operators and some intrastate gas operators were inspected only once during the 5-year period 1978-82 and some were not inspected at all. In addition, OOE has decided to inspect certain categories of intrastate operators--master meter and LP gas--only when a complaint is received, an accident occurs, or a specific request is made. OOE has never had the staff to accomplish its goal. Moreover, staff vacancies and inadequate travel funds further affected OOE's ability to meet its goal and reduced the amount of inspection coverage that could have otherwise been provided. To help compensate for its lack of resources, OOE obtained inspection assistance from some states.

An opportunity exists to improve inspection coverage. Specifically, interstate operators could be required to establish quality assurance programs which could reduce the time it takes OOE to inspect these operators. However, this change alone would be insufficient to enable OOE to adequately carry out its current program responsibilities with its existing resources.

By improving its inspection records and reports, OOE could improve the management of its inspection program and assure effective use of OOE's existing resources. The inspection records and reports need to contain more detailed information on OOE's inspection workload and the inspections that it performs. Management improvement projects in these areas have been postponed because of staffing constraints.

Staffing changes and budget cuts also have affected the pipeline safety program in areas such as research and development, training, and headquarter's monitoring of the regional offices. Appendix III contains a discussion of pipeline safety program staffing and funding and these other consequences of staff changes and budget restrictions.

¹Comprehensive inspections are those which include a thorough monitoring of the operator's records concerning inspection, operation, maintenance, and emergency procedures, and which check all applicable sections of the regulations, or a series of partial inspections which equate to a comprehensive inspection. It usually takes 1 inspector about 2 staff days but it may be longer or shorter depending on the size of the system. During this time, the OOE inspector makes spot checks of records, discusses the pipeline system operation with the operator, and observes the condition of a portion of the system.

INSPECTION COVERAGE OF PIPELINE
OPERATORS UNDER FEDERAL
JURISDICTION DOES NOT MEET GOAL

OGE has a goal of performing a comprehensive inspection of each operator annually. While it may not be necessary to inspect all operators annually, OGE did not come close to meeting this goal during the period covered by our review. Some operators had been inspected only once in a 5-year period, others not at all. Also, certain types of intrastate operators under federal jurisdiction--master meter and LP gas operators--are not being routinely inspected.

We believe that OGE's inability to provide adequate inspection coverage is due primarily to staffing constraints. Travel fund limitations have primarily affected OGE inspectors' attendance at training courses and at meetings/seminars on pipeline safety issues but have also impacted on inspection activities to some extent. In an effort to increase operator inspections, OGE has authorized 12 state agencies, acting as its agents, to perform inspections of interstate gas operators.

Inspection coverage does not
meet OGE's goal

OGE has direct inspection and enforcement responsibilities for interstate gas and liquid pipeline operators and those intrastate gas pipeline operators not subject to state jurisdiction. According to OGE's fiscal year 1983 operating plan, OGE's inspection workload includes 235 interstate hazardous liquids operators, 122 interstate gas operators, 288 intrastate gas operators (including 255 municipal operators), and 16 LNG facilities. (OGE's operating plans exclude all master meter and most LP gas operators from periodic federal inspection.) (See app. IV.)

OGE's goal has been to conduct annual comprehensive inspections of these operators. However, many interstate gas and liquid operators had not been inspected for several years and a few had never been inspected. Also, even though municipal operators are considered high risk operators because they have more violations of the federal safety standards, some were not being annually inspected.

A May 23, 1983, memorandum from the Associate Director, OGE to the region chiefs suggested that for fiscal year 1984 OGE might want to change its inspection goal to one based on the proven performance of pipeline operators in order to obtain better utilization of OGE's scarce resources. The memorandum stated that from its inspection experience OGE knows that some operators have more violations of the safety regulations than do others, and therefore, OGE might want to spend more effort on the former. For example, OGE may choose to inspect interstate gas transmission

operators less frequently than municipal gas distribution operators. The difference in inspection frequency could vary by category of operator within a state and by region.

The Associate Director subsequently told us that the inspection goal would not be changed for fiscal year 1984 because they did not have enough historical data and changing the goal would be meaningless without the additional resources that would be needed to meet the revised objectives. Therefore, for fiscal year 1984, OOE is having each region determine its own inspection priorities and which operators are to be inspected.

The region chiefs differed in their opinion as to how frequently pipeline operators need to be inspected but acknowledged that the amount of inspection coverage being provided was inadequate. The two region chiefs responsible for large numbers of municipal operators said that municipals should be inspected annually but that it would be sufficient to inspect interstate gas and liquid operators biennially. The other region chiefs told us that the goal of inspecting each operator annually was appropriate.

As explained on page 8, we did not evaluate the reasonableness of the agency's goal of annual inspections. We analyzed, however, the extent to which OOE was complying with the goal and the reasons it was not being met. This analysis showed that about 24 and 17 percent of the operators in OOE's inspection workload, which excludes all master meter and most LP gas operators, received comprehensive inspections in calendar years 1981 and 1982 respectively. Other operators were visited during these years but the visits were for such purposes as follow up inspections² and new construction inspections, and do not constitute a comprehensive inspection. The following table shows both the number of operators visited for any type of inspection and the number receiving comprehensive inspections.

²Follow up inspections are a check of an operator's records and/or a physical inspection where appropriate to assure that violations noted during a previous inspection have been corrected.

Number of Operators Receiving Inspections

During Calendar Years 1981 And 1982

	<u>Category of Operator</u>				<u>Total</u>
	<u>Inter- state liquid</u>	<u>Inter- state gas</u>	<u>Intra- state gas</u>	<u>LNG facilities</u>	
Number of operators under federal jurisdiction	235	122	288	16	661
Operators visited for any inspection purpose:					
1981	39	46	105	6	196
1982	70	35	99	3	207
Operators receiving comprehensive inspections:					
1981	31	39	81	6	157
1982	33	22	52	3	110

OOE's region chiefs attributed the regions' inability to meet the inspection goal to inadequate resources.

--The western region, which has 11 interstate gas operators and 50 interstate liquid operators, conducted 7 comprehensive inspections of 6 interstate gas operators and 29 comprehensive inspections of 20 interstate liquid operators during calendar years 1978-82. The region chief stated that because of inadequate staff many operators in his region had not been inspected since the regional office was established in 1975. Prior to OOE's move of its western regional office from California to Colorado in June 1983, the staff had fluctuated between 1 and 2 inspectors.

--In the eastern region, all 15 of the interstate gas operators had received a comprehensive inspection in two or more of the calendar years 1979-82 and 6 of the 15 had received a comprehensive inspection once each year during the 4-year period. However, only 5 of the 23 interstate liquid operators had been inspected during this same time period. According to the chief, eastern region, the interstate liquid operators were being inspected less frequently

because the region's staff was inadequate to inspect both. During this period of time, the region had 2 inspectors.

--The southern and southwest region chiefs stated that the interstate gas and liquid operators in their regions were not being inspected annually but were on an inspection cycle of 3 to 4 years for the 27 gas and 24 liquid operators in the southern region and 5 to 6 years for the 34 gas and 71 liquid operators in the southwest region. They said that the interstate operators were being inspected infrequently because of the priority given to municipal operators which they believe pose a greater safety risk to the public. Because of the length of time between inspections of interstate operators, the southwest region chief made a special effort to visit each interstate liquid operator in the region during 1982 and 1983 to discuss the liquid pipeline safety program and instruct the operators on how to improve their operations and maintenance plans. A total of 38 such visits was made. Except for the periods of time the regional offices had staff vacancies (see p. 22), the staffs in both regions included 4 inspectors.

Of the 255 municipal operators under OOE's jurisdiction, 235 are located in the southern and southwest regions, in the states of Kentucky (50), Georgia (85), and Louisiana (100). While these regions place high priority on these operators, some municipals still receive infrequent inspections. For example, in the southwest region 23 municipal systems had received but one comprehensive inspection each during the 5-year period 1978-82. The southwest region chief stated that the region has 25 to 30 municipals that need frequent inspection and follow up to assure that safety violations noted during previous inspections are corrected and that safe systems are maintained. The western region, which has 15 municipals under its jurisdiction, had conducted one inspection each of 9 municipal systems during calendar years 1978-82. Most of these inspections were comprehensive.

Despite increases in the regional office staffing in the past year (see p. 22), the region chiefs indicated that the number of inspectors is still insufficient. For example, the chief, southwest region, stated that 7 to 9 additional engineers would be needed to conduct annual inspections of the 100 municipals and biennial inspections of the 105 interstate gas and liquid operators. The chief, southern region, indicated that with the region's current staff, it would take 2 years to conduct comprehensive inspections of the 190 operators in the region.

According to a fiscal year 1979 OOE staffing study, a total of 228 inspectors were needed to carry out OOE's program responsibilities--38 for inspecting 670 interstate gas, interstate liquid, and intrastate gas operators; 3 for monitoring the state agencies; and 187 for inspecting about 28,750 master meter operators. However, as of April 2, 1984, OOE had but 17 regional office inspectors.

The Department's budget submissions to the Congress and its annual reports to the Congress on pipeline safety have not clearly portrayed OOE's inspection coverage of the operators under its jurisdiction. Neither document indicates what level of inspection coverage the Department considers necessary to ensure pipeline safety and the number of inspectors needed to provide that level of coverage. Also, neither document provides the historical data which would indicate whether inspection coverage is increasing, decreasing, or remaining relatively constant.

Need to inspect master meter
and LP gas operators under OOE's
jurisdiction

OOE is responsible for a large number of master meter and LP gas (intrastate gas) operators. OOE inspectors have stated that these gas systems, especially those that have never been inspected, pose a greater safety risk than most other types of operators because they have more violations of the safety standards. OOE officials have stated, however, that these operators are not being scheduled for routine inspections because OOE does not have adequate staff to inspect them.

Master meter inspection issues

As of September 30, 1983, 20 states had not accepted jurisdiction over an estimated 27,400 master meter operators (see app. V). Responses to the questionnaire we sent to the states indicated that Hawaii and Nevada were seeking jurisdiction. Of the remaining 18 states, 15 indicated that they did not intend to acquire jurisdiction because additional staff and/or funds would be needed, and/or state laws would need to be changed; 2 (Alaska and South Dakota) do not have an inspection program; and 1 (District of Columbia) did not respond to the question.

Since 1973 the Department's annual reports to the Congress have stated that problems exist getting master meter operators to comply with federal regulations. Its 1981 annual report states that master meter operators usually lack the resources and technical expertise to carry out an effective inspection and maintenance program and to interpret the technically complex regulatory and reporting requirements under which they are expected to operate.

OOE's policy, however, has been to inspect the master meter operators under its jurisdiction only when a complaint is received, an accident occurs, or a specific request is made. According to agency data, OOE conducted a total of 37 such inspections during calendar years 1978-82. The Chief, Pipeline Safety Enforcement Division attributed OOE's limited coverage of these operators to lack of staff.

The Congress, the Bureau, some states, and we have all expressed concern over the safety risks posed by master meter

systems. In our report to the Congress entitled Pipeline Safety--Need for a Stronger Federal Effort (CED-78-99, April 26, 1978), we said that one of the pipeline safety areas that had not received adequate attention was inspections of the many thousands of master meter operators located in states that had not assumed jurisdiction over such operators.

A May 15, 1979, report by the House Committee on Interstate and Foreign Commerce on the proposed Pipeline Safety Act of 1979 states that:

". . . In the 10 years since the enactment of the Natural Gas Pipeline Safety Act, the Secretary has taken no public action to protect the interests of persons served by master meters. The committee heard testimony of master meter situations serving trailer courts where the gas was distributed to tenants by garden hose or jury-rigged water pipe. It also heard of substandard apartment buildings served by gas pipes over which no entity exercised safety authority. . . The committee understands the reluctance of the Secretary to enter into this complicated and demanding area; however, the protection of the public safety requires such action and the committee expects to see that it is taken."

The subsequently enacted Pipeline Safety Act of 1979 required the Secretary of Transportation to report to the Congress within 18 months on how, when, and to what extent the Department intends to implement safety jurisdiction over master meter operators. In its report,³ the Bureau proposes continuation of its past practices, that is:

- Continue to consider master meter gas operators subject to the federal gas pipeline safety regulations.
- Continue enforcement responsibility for master meter operators in those states that refuse to assume jurisdiction but investigate them only upon request, accident, or specific complaint.
- Encourage all states to assume master meter jurisdiction.

According to the report:

"The MTB [the Bureau] continually has encouraged states to assume full jurisdiction of intrastate master meter systems. The policy of encouraging states to assume full jurisdiction is based first on the NGPSA premise that it is preferable for states to enforce all intrastate gas transportation regulations. Second, neither

³Exercise of Jurisdiction Over Master Meter Gas Operators, dated March 1984.

the Act nor the Federal approach to budgeting and resources has ever contemplated permanent Federal responsibility for inspection and enforcement of intrastate distribution company activities."

We agree that OOE should encourage states to assume full jurisdiction over intrastate operators. However, until jurisdiction is assumed by the states, the Department retains the responsibility for inspection and enforcement functions related to these intrastate operators including master meters.

The report recognizes that master meter systems present safety hazards and that these hazards can be expected to increase if adequate maintenance is not started. Citing a survey of gas utility companies, done as part of a study prepared for the Bureau in June 1979, the report states that the average master meter system is approximately 16 years old and most are constructed primarily of steel. The report states that the age of the system is significant because without proper maintenance and operation the system will deteriorate with age and sooner or later may become unsafe or even hazardous. The life of unprotected steel pipe can vary from 1 to 40 years, depending on the environment, but 20 to 30 years is a good average life. Therefore, increasing problems can be expected in the near future if adequate maintenance is not started.

States that have jurisdiction over master meter operators and that have performed some type of inspection of them have found significant problems with these operators. For example, Arkansas State inspectors, who began inspections of master meter operators in 1980, have found more noncompliances in the operators' corrosion control systems than the operators can correct. Although the operators are willing to comply, they cannot get enough qualified personnel to do the work. The state agency maintains a list of qualified contractors that they give to the operators; however, the list contains only 2 contractors that work on corrosion control systems.

According to the Arizona Pipeline Safety Engineer, Arizona assumed jurisdiction over its master meter operators on July 29, 1983, because 19 incidents occurred with these operators between December 1980 and July 1983. These incidents resulted in 2 fatalities and 1 severe injury. One investigation of a state university in 1981 resulted in the replacing of the entire distribution system downstream of the master meter at an approximate cost of \$1 million.

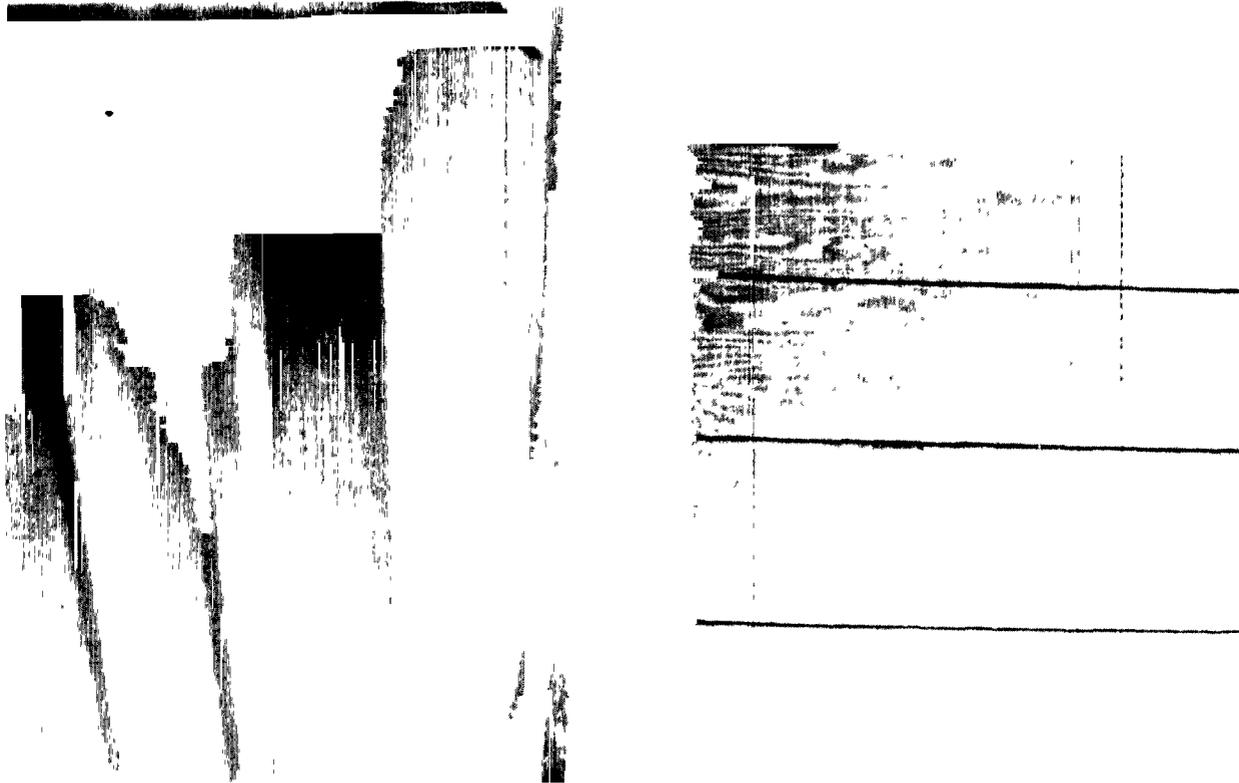
Texas has had responsibility for master meter operators for a number of years but has not had a program for inspecting these operators. During fiscal year 1984-85, Texas is planning to develop such a program, locate its estimated 40,000 operators, and begin initial inspections. Initial inspections will be followed by scheduled routine evaluations and the creation and presentation

of pipeline safety training courses geared to master meter operators. According to a Texas State agency official, the state expects to find many problems; however, once the operators are brought into compliance, they are not expected to be as much of a problem.

The pictures on the following page were taken at a mobile home park located in the state of Nevada, a state which is seeking but has not yet accepted jurisdiction over master meter operators. In December 1981, the state's gas pipeline safety engineer performed an inspection of the mobile home park's gas system at the request of another state agency. He found (1) 295 gas leaks which necessitated turning off the gas in 181 of the park's 279 mobile homes, and (2) gas mains which had to be relocated because they were located under the mobile homes. The inspector also found the following violations of federal, state, and local regulations.

- 274 regulators (devices designed to reduce and limit the gas pressure to the consumers) were located within 3 feet of a source of ignition. (Most regulators have relief valves and gas escaping from these valves, close to a source of ignition, could cause an explosion.)
- 108 lines to mobile homes had no stopcocks (stop valves which make it possible to put a regulator into service or take it out of service). (This creates a safety risk when maintenance crews are working on the lines.)
- Regulator assembly was installed underneath a window and regulator vents were plugged or facing upward. (If the vent is obstructed, the regulator will not operate properly. When facing upward, the vent allows water, dirt, etc., to enter.)
- Flexible connectors were damaged or lying on the ground and underneath power boxes. (Power boxes are a source of possible ignition, so an explosion can occur if gas escapes from a damaged flexible connector.)

Some states have addressed the master meter safety problem by making the distribution utilities responsible for the master meter systems. For example, master meter operators in Michigan are the responsibility of the distribution utilities that sell gas to the operators. The utilities perform the operation and maintenance required by the regulations but charge the operator a fee to cover the cost. Similarly, all but 7 of Oregon's 100 to 150 master meter systems are being serviced by the utility companies providing the gas. Other states such as Oklahoma, Iowa, Washington, and Wyoming have addressed the master meter safety problem by passing state laws prohibiting the installation of new master meter systems and thereby were attempting to eliminate this type of gas system through attrition.



A gas line located between a mobile home and a shed
This means the shut off valve could not be reached in an emergency



Source Photographs courtesy of the Nevada Public Service Commission
A bent gas line lying on a sewer pipe and the flexible connector in contact with the ground

LP gas inspection issues

According to the Department's annual report to the Congress, as of December 31, 1982, 19 states did not have or had only partial jurisdiction over LP gas operators. In responding to our state agency questionnaire, 3 of the 19 states (North Carolina, Ohio, and Mississippi) indicated that they intended to request jurisdiction over these operators. A Mississippi State official subsequently told us that Mississippi has obtained jurisdiction effective in 1984. The reasons the other states gave for not requesting jurisdiction over LP gas operators included the need (1) for additional staff and/or funds, (2) to send staff to training, and (3) to change state laws.

Impact of regional office staff vacancies and travel budget constraints on OOE's inspection coverage

Inspection coverage has been somewhat less than what would otherwise have been possible in recent years because of staff vacancies and inadequate travel funds.

Three of the authorized OOE regional office inspector positions remained vacant for extended periods. The southwest region had an inspector position vacant from June 1981 until December 1982, the western region had one vacant from November 1981 until June 1983, and the southern region had one vacant from April 1982 until April 1983. Between December 1982 and June 1983, OOE filled the 3 long standing vacancies and as of April 2, 1984, all 17 regional office positions were filled.

The Associate Director, OOE, said that the regional office vacancies remained open for so long because the Office of Personnel Management does not maintain a list of qualified pipeline inspectors, a long time is required to process the paperwork necessary to hire federal personnel, and additional evidence was needed to show justification for filling the vacancies in order to obtain exemptions from the Department's hiring freeze. Agency officials also said that actions to fill these vacancies were suspended in the months prior to the agency's July 1982 reduction-in-force because of the uncertainty as to how the reduction-in-force would affect regional office staffing.

When using travel funds in the regions, priority is given to travel for monitoring state agencies and conducting operator inspections. Therefore, travel fund constraints have primarily impacted travel to attend training and meetings/seminars (see appendix III); however, the regions' inspection activities have also been affected. For example, the southwest region initially requested \$41,500 for fiscal year 1981 so that the region's inspectors could spend 250 days inspecting pipeline operators. However, the region revised this projection to 171 days based on receiving \$30,700 for travel. In order to increase travel funds

available for inspecting pipeline operators, the region eliminated travel for training, seminars and briefings. As a result, the region was able to fund 232 inspection days.

States assist OOE with its inspection activity

States are aware of OOE's inability to provide adequate inspection coverage of all operators under its jurisdiction. As a result, some states have assisted by inspecting interstate and/or intrastate operators that are under OOE's jurisdiction. As explained on pages 3 and 4, many states have accepted jurisdiction over some but not all types of intrastate gas operators.

OOE maintains that inspection of interstate operators is properly a federal responsibility, and the use of states as interstate agents was meant as a stop-gap measure until such time as the federal inspection effort was brought up to full strength. Currently, although OOE is not encouraging states to act as interstate agents, OOE will accept requests from those states that have expressed an interest in being interstate agents if the state has already assumed full jurisdiction over all intrastate pipeline operators (including municipal and master meter systems) and are performing their duties at an acceptable level.

As of December 31, 1983, 12 states were acting as interstate agents. These states receive up to 50 percent reimbursement for the cost of performing inspections of interstate operators.

Other states also have inspected some interstate and intrastate operators even though the operators were not under the states' jurisdiction. The Department occasionally authorizes a state to act as a temporary agent to investigate a specific operator or accident when the operator is under federal jurisdiction. For example, Kentucky and Arizona inspectors have provided OOE special assistance from time to time on such matters as conducting pipeline accident investigations. If violations were found in these states, however, the state inspectors had to either obtain voluntary compliance or refer the case to the OOE regional office.

OPPORTUNITY TO INCREASE INSPECTION
COVERAGE FOR INTERSTATE OPERATORS
USING QUALITY ASSURANCE PROGRAMS

The amount of time required to perform inspections of interstate gas and hazardous liquids pipeline operators could be reduced if these operators maintained quality assurance programs. The operators' quality assurance staff would check for compliance with the federal safety standards and maintain records on the results of their checks. The OOE inspectors could then limit

their review of the operators' programs and spot check the operators' efforts to oversee their own pipelines. In addition, quality assurance programs could help the operators identify potential safety risks on their own. Such identification could reduce pipeline failures.

If interstate operators maintained quality assurance programs that addressed the federal safety standards, inspections could be performed in less time and possibly less frequently than OOE's current goal (annual inspections) calls for and still provide an adequate degree of assurance that the operators are complying with the federal safety standards. Currently, a comprehensive inspection of an interstate operator lasts 2 to 3 days. The OOE regions could then concentrate on those operators under their jurisdiction without effective programs, or devote more time to other priority tasks such as monitoring state agencies and educating small operators.

OOE's fiscal year 1979 staffing study states that a total of 228 inspectors were needed at that time to conduct inspections of interstate gas and liquid, and intrastate gas operators, including master meter operators, and monitor the state agencies. Therefore, it is unlikely the use of quality assurance programs would save enough staff time to enable OOE to adequately carry out all its program responsibilities.

Advantages exist for having intrastate as well as interstate operators establish quality assurance programs. However, intrastate operators usually have small pipeline systems in comparison to interstate operators. Therefore, they may not have the knowledgeable personnel or resources to establish quality assurance programs. Requiring them to establish such programs may be impractical. The situation is quite different with the interstate operators. According to agency officials, large interstate pipeline operators generally have personnel that are knowledgeable as to the requirements of the federal regulations, have the resources necessary to comply with the regulations, and some already have programs that are used for the operators' internal quality control purposes. Their programs could be adjusted to incorporate checks for compliance with the federal safety standards.

In a December 1982 report,⁴ the Department's Inspector General recommended that RSPA:

"Rely more extensively on the quality assurance programs of large distributors as a means of assuring that smaller operators in towns and cities comply with Federal gas pipeline safety standards."

⁴Final Report on Audit of Selected Aspects of the Gas Pipeline Safety Program, RSPA, Report No. R6-RS-3-005 dated December 17, 1982.

In response to the Inspector General's report, RSPA stated:

"In the future, we will attempt to take better advantage of distributor Q/A [quality assurance] programs, but with extreme caution. . . . Our experience has shown that quality assurance programs do not always eliminate safety problems. Many violations have been discovered by Federal and state inspectors despite the existence of such programs. The benefits of increasing the number of small operators that could be inspected should Federal and state personnel utilize quality assurance programs to determine system compliance might well be more than offset by the decline in system safety were on-site visits to large operators with quality assurance programs curtailed."

We agree that the operators' current quality assurance programs would be of limited value in reducing the amount of resources OOE needs to devote to inspections of large operators. However, this is because the present quality assurance programs were not developed for that purpose. We believe that if the programs were revised to include the types of data needed to assure the interstate operators' compliance with the federal safety standards, OOE inspectors could spot check the operators' quality assurance records and facilities and achieve equal or greater inspection coverage in less time.

To ensure that the interstate operators' quality assurance programs adequately ensure pipeline safety and meet the OOE inspectors' oversight needs, OOE would have to (1) amend the regulations to require all interstate operators to have such programs, (2) develop instructions on what the operators' programs should consist of and how the program would operate, and (3) review and approve each operator's program. During our discussions with OOE headquarters and regional office officials, several indicated that under these circumstances quality assurance programs could be useful.

We recognize that both OOE and the operators would need to devote staff time and incur certain costs when developing and implementing these programs. We did not attempt to determine these costs because it was outside the scope of this review. Before implementing such programs, OOE would have to determine their cost effectiveness.

OPPORTUNITIES TO IMPROVE MANAGEMENT OF INSPECTION ACTIVITIES

Sound program management is dependent on having sufficient inspection workload and activity data to ensure that OOE's limited resources are used in the most effective manner. However, OOE's inspection records and reports do not provide sufficient data on its inspection workload and coverage. All interstate operators in the regions' workload have not been broken down into

similar inspection units.⁵ OOE has not developed an inventory of the master meter and LP gas (intrastate gas) operators that are under its jurisdiction. Also, the regions' monthly activity reports do not adequately describe the regions' inspection activity.

Need to define inspection workload
using consistent criteria

Because of differences in pipeline operations and what OOE considers a unit subject to annual inspection, some large operators have been subject to less coverage than the smaller operators. An operator as defined and used in OOE's inspection goal can apply to widely differing pipeline operations. For example, an operator could be (1) a small company owning and operating only a few miles of pipeline, or (2) a large company owning and operating several pipeline systems which carry different products and have independent management divisions. To illustrate, in the central region, the Williams Pipeline Company owns and operates several pipelines with an aggregate pipeline length of over 9,200 miles. Williams' four district offices manage the operation of pipelines that are located in 11 states and transport crude oil, petroleum products, liquefied petroleum gas, and fertilizer solutions. In contrast, Jawhawk Pipeline Company has 711 miles of pipe, transports one commodity--crude oil, and is located in two states. The central region considers it has fulfilled its annual inspection goal, however, if at least one segment of each operator's total system is inspected during the year.

During a September 1980 region chief's meeting, OOE officials decided that operators should be divided into distinct inspection units. On December 5, 1980, a memorandum from the Associate Director, OOE requested that each regional office provide headquarters a list of all inspection units for each operator in the region. According to the Associate Director, the information would be used as a basis for determining the adequacy of regional resources and inspection coverage. The regions were to complete this task by January 20, 1981.

Although some guidance was provided, the inspection unit breakouts submitted by the regions were not consistent. Some operators were divided by divisions, some by districts, and some by function (i.e., by headquarters units, compressor units, etc.). According to two region chiefs, the regions needed more uniform criteria and guidelines for determining an inspection unit.

⁵OOE defined an inspection unit as a portion of an operator's system that, in the opinion of the regional chief, should be inspected separately. The inspection unit may be an area/division office or any portion of an operator's system that has similar physical or managerial characteristics.

The Department's Inspector General also concluded that OOE needed to divide its large interstate gas and liquid operators into inspection units. In its March 1981 report,⁶ the Inspector General stated that an interstate operator's system is often divided into segments, sometimes called districts, which cover several hundred miles of pipe and numerous other facilities. Although an operator may establish operating policies and procedures for the entire system, local management and operating personnel may implement them differently. Conclusions drawn from an inspection of one district are not necessarily applicable to the operator's entire system. Consequently, to a large degree each district should be treated as a separate entity for inspection purposes.

In an April 30, 1981, response to an Inspector General recommendation to better define the character of its inspection universe, OOE stated that rather than expend the staff's time researching and analyzing the organization of the interstate operators at the expense of not conducting field inspections, the Associate Director has elected to suspend activity on this task until a more favorable time. The Associate Director hoped that additional progress could be made when future changes within the Bureau provided more staff for analytical efforts of this kind.

During our review, we found that the regions still had not upgraded their inspection inventories. The inventories were not complete, current, and/or used. For example,

--According to the southern region chief, the inspection unit breakout performed in 1980/81 had not been used because inadequate resources precluded frequent inspection of the interstate operators in the region. He stated that if the region were to make more frequent inspections of these operators, an inspection unit breakout would be useful; however, he would want to make a reevaluation of the 1980-81 breakout to determine if it is appropriate.

--In the eastern region, the interstate gas systems had been divided into inspection units and were being inspected based upon this division. According to the chief, however, division of the interstate liquid systems had not been formally documented because of inadequate staff time and because of the low priority of the task.

⁶Review of OOE Direct Inspection and Enforcement Activities-- Southwest Region, RSPA, Report No: R6-RS-1-066 dated March 20, 1981.

Need to include master meter and LP gas operators in OOE's workload inventory

OOE does not have an inventory of the master meter and LP gas operators under its jurisdiction. OOE does not know the names and addresses or even the number of these operators.

A June 1979 Bureau study estimated that the number of master meter operators in the country ranges from 65,000 to 102,000 and is probably about 80,900. As of September 30, 1983, 20 states had not assumed inspection responsibility for these types of operators. According to the study's estimates for the individual states, there are 27,400 master meter operators in these 20 states (see app. V). The remaining 53,500 master meter operators are in states that have accepted the inspection responsibility.

The actual number of master meter operators subject to the federal safety standards may be considerably larger or smaller than the study's estimates. According to state responses to our questionnaire, the number of master meter operators in some of the states which have inspection responsibility differ greatly from the study's estimate. Examples of these differences are as follows.

<u>State</u>	<u>Master meter study</u>	<u>State responses</u>	<u>Difference</u> Increase (Decrease)
Arkansas	1,756	800	(956)
Michigan	1,136	150	(986)
Arizona	975	2,200	1,225
West Virginia	514	1,500	986
New Mexico	421	900	479

We did not determine the validity of the Bureau's master meter study estimates. However, in view of the above differences in the number of master meter operators reported in state responses to our questionnaire and the study's estimates for those states, the 27,400 master meter operators subject to OOE inspections may be considerably more or less than the actual number.

Like master meter systems, the number of LP gas systems under federal jurisdiction is unknown. In March 1981, the Bureau estimated (based on National LP Gas Association data) that the number of LP gas systems in the country subject to the federal regulations range from 50,000 to 100,000.

According to the Chief, Pipeline Safety Enforcement Division, the region chiefs have been instructed to include LP gas operators in their workload whenever they are identified by the regions. At the time of our review, however, none of the regions knew how many LP gas operators should be included in their workload inventories. Only the western region had included any LP gas operators in its inventory and 9 of the 11 in its inventory had

been turned over to OOE by the California Public Utilities Commission when California deregulated LP gas operators in 1980.

Need to better document interstate and intrastate inspection activity

The regions prepare monthly activity reports which show the total number of inspections performed on each category of pipeline operator but the reports do not differentiate between the different types of inspections (e.g., comprehensive, follow up and new construction). Therefore, the data reported is of limited value to program management for purposes of monitoring the adequacy of inspection coverage being provided by the regions.

In its March 1981 report, the Department's Inspector General stated that OOE's reporting procedures, which permit partial inspections and visits with pipeline operators to be treated in the same manner as comprehensive inspections, have resulted in misleading reports to top management concerning the adequacy of the inspection program. Our review of the regions' calendar year 1982 inspection records provides some indication as to the nature of the problem. Of the 269 inspections reported by the regions, slightly less than half were comprehensive inspections and about one-third were follow up inspections. Of the remainder, most (32 of 52) were visits made to interstate liquid pipeline operators in the southwest region to discuss the liquid pipeline safety program and get them to improve their operations and maintenance plans.

Agency officials have recognized the need to distinguish inspections by types. At a region chiefs meeting in June 1982, agreement was reached that the Pipeline Safety Enforcement Division would review and revise statistical reporting procedures to provide for possible new categories of inspection accounting, such as comprehensive inspections, follow up inspections, responses to complaints, and accident investigations. According to agency officials, however, this project has been delayed because of staffing problems. The project was initially given to an individual assigned to the Pipeline Safety Enforcement Division. Eight months later, in March 1983, this individual left the agency. In November 1983, the project was reassigned to another staff person in the division. Current plans are to reevaluate the statistical data presently shown on the monthly activity report to determine its need, the need for additional data, and the timing of the report.

CONCLUSIONS

OOE's regional office staff is not sufficient to provide adequate inspection coverage of the interstate and intrastate operators under the Department's jurisdiction. Some operators have been inspected only once during a 5-year period while others have not been inspected. Furthermore, about 27,400 master meter operators and an unknown number of LP gas operators are under the Department's jurisdiction but are not included in OOE's inspection workload and OOE inspects them only as a result of a complaint,

accident, or specific request. A fiscal year 1979 OOE staffing study--the only such staffing study performed--states that a total of 228 inspectors would be needed for OOE to adequately carry out all program responsibilities, using a goal of annual inspections.

OOE could improve the efficiency of its limited inspection workforce by placing more reliance on the interstate operators to ensure the safety of their pipeline systems. This could reduce the level of federal inspection needed at these operators and allow OOE regional office inspectors more staff time to devote to other inspection priorities. Before this can be done, however, the Department would have to change its regulations and ensure that each interstate operator develops an effective and reliable quality assurance program that encompasses the federal regulations. Because this could be costly to the Department and to those interstate operators without adequate quality assurance programs, the Department should perform an evaluation to determine if this programmatic change would be worthwhile.

Other changes may be needed to enable agency officials to better manage OOE's inspection program and to determine the staff and funds needed to provide adequate inspection coverage of all interstate and intrastate operators that are under OOE's jurisdiction. OOE needs to

- complete a breakout of the interstate gas and hazardous liquids pipeline operators in its inspection workload into common inspection units. Pipeline operators differ greatly in size and in the management of their operations, and differences exist as to what OOE considers a unit subject to annual inspections. Without consistent criteria for its inspections, some smaller operators receive more coverage than larger operators.
- identify and add to its workload all master meter and LP gas operators located in states that have not assumed jurisdiction over these categories of intrastate operators. Despite having inspection responsibility for such types of operators, OOE does not know their names and locations or even the number of these operators. Therefore, it cannot effectively consider them in setting inspection priorities.
- expand and refine the inspection workload and activity data the regions maintain and report to headquarters to reflect (1) the number of inspection units subject to inspection and the number of units inspected, by category of operator, and (2) the types of inspections (e.g., comprehensive, follow up, new construction) performed on each category of operator. In addition to not using consistent criteria for its inspections of different size operators and not identifying master meters and LP gas operators under its jurisdiction, OOE does not report the number of inspections it performs by type. Therefore, the data reported is of

limited value to program management for purposes of monitoring the adequacy of inspection coverage being provided by the regions.

These changes alone, however, will not be enough to allow the Department to adequately carry out all program responsibilities. Additional resources will still be needed unless the states assume more of the inspection and enforcement responsibilities for the intrastate operators or unless federal legislation is adjusted to relieve the Department of some of its current enforcement responsibilities. With regard to this, in chapter 5 we recommend that the Department, in consultation with the states, develop and present to appropriate congressional committees, alternatives for ensuring the safety of intrastate pipelines, including possibly redefining the federal and state roles and responsibilities.

RECOMMENDATIONS TO THE SECRETARY OF TRANSPORTATION

We recommend that the Secretary of Transportation direct the RSPA Administrator to

- evaluate and, if the benefits of establishing a quality assurance program outweigh the cost, establish and implement a mandatory quality assurance program for interstate pipeline operators,
- complete and update its inspection workload by dividing all interstate gas and liquid operators into common inspection units, and by including the master meter and LP gas operators that are under its jurisdiction, and
- require OOE regions to expand and refine the inspection workload and activity data they maintain and report to headquarters to include, for each category of operator, the number of inspection units subject to inspection and the number of units that have been inspected one or more times during the year, and a breakout of the number of inspections performed by type of inspection.

AGENCY COMMENTS AND OUR EVALUATION

The Department said that OOE's goal of performing one comprehensive inspection of each pipeline operator annually was an initial planning target used in fashioning the Department's inspection program but, because the pipeline safety program has been in existence for several years, the Bureau now needs to reexamine its goal giving consideration to the balance needed between public safety and resource requirements. The Department said that until this analysis is performed, however, it cannot a priori agree that the level of national inspection effort is inadequate. We recognize that the goal was an initial target and agree with the Department's proposed action to reexamine the goal, which could result in requiring inspections less frequently than once a year. Our conclusion, however, that the Department is

not meeting its inspection responsibility was reached based not only on the fact that the Department did not meet its goal, but also because some operators under its jurisdiction have never been inspected, and some were inspected only once in the 5-year period covered by our review which is substantially less than its annual inspection goal. In addition, the Department's regional office chiefs said that they did not have sufficient resources to meet the goal.

The Department commented that based on one experience with an operator with a large quality assurance program, it has been unable to draw satisfactory conclusions about the effectiveness of such programs. However, the Department agreed to evaluate the use of quality assurance programs and, in doing so, consider the costs and benefits of such programs as we have recommended.

The Department agreed that its inspection workload should be divided into common inspection units and added that the phrase "common inspection unit" should be defined in terms of an operator's administrative structure rather than in terms of geographical boundaries, political subdivisions, pipeline characteristics, or any combination of these categories. The Department said that it intends to use this definition and apply it to all jurisdictional operators. The Department's proposed action, if properly implemented, should address our concern.

The Department did not respond to our recommendations to (1) include master meter and LP gas operators in its workload and (2) expand and refine inspection workload and activity data that the regional offices maintain and report to headquarters.

The requestor asked us to provide the National Transportation Safety Board a copy of our draft report. (The Board is responsible for investigating or causing the investigation of specific types of pipeline accidents to determine the facts, conditions, circumstances, and the probable cause of these accidents and to develop safety recommendations for reducing the probability of their recurrences.) In testimony given before the House Committee on Energy and Commerce's Subcommittee on Fossil and Synthetic Fuels on March 13, 1984, the Board stated that its staff had reviewed the draft GAO report and generally concurred with the report's proposed findings. The Board added, however, that it believes that any proposed departmental actions should include an objective analysis of pipeline safety data and that to do this the Department must first develop a data analysis plan, as recommended by the Board in 1980, and then restructure its data collection systems.

CHAPTER 3

OPPORTUNITY TO IMPROVE FEDERAL OVERSIGHT AND MANAGEMENT OF STATE PIPELINE SAFETY PROGRAMS

While states participating in the pipeline safety program share responsibility for pipeline safety with the federal government, the Department is responsible for ensuring that the states' programs are adequate to assure operator compliance with the federal safety standards. The Department can improve its annual evaluations and overall management of state agency pipeline safety programs by

- using more objective measures to evaluate state agency performance and updating the criteria used to determine the minimum level of state inspection activity;
- providing additional guidance to state agencies to reduce inconsistencies in their reporting of inspection and enforcement activity data; and
- improving criteria for determining the qualifications and training necessary for state agency inspectors.

NGPSA gives the Department responsibility for administering the federal/state cooperative program. This includes (1) monitoring the performance of the state agencies participating in the program to assure that each state agency's program is in compliance with NGPSA, and (2) providing eligible states grant-in-aid funds¹ which cover up to 50 percent of their program costs. In calendar year 1982, state agencies accounted for about 98 percent of the staff-days spent inspecting gas and liquid pipeline systems.

The OOE regions try to make an annual monitoring visit to each state agency. Monitoring visits were completed for 49 state agencies in 1982, 48 in 1981 and all the state agencies in 1980. A monitoring visit by the region staff--usually the region chief--generally lasts 2 to 3 days and includes reviewing inspection records in the state office, talking about the program with state agency personnel, and accompanying a state inspector on an inspection of an operator.

ANNUAL EVALUATIONS CAN BE IMPROVED

The OOE regional offices' annual evaluations of the state agencies' pipeline safety programs can be improved. The use of

¹Two state agencies presently participating in the program (South Carolina and one of the two Florida agencies) do not request federal grant-in-aid funds.

more objective measures of a state agency's inspection and enforcement activities and improved/updated criteria for evaluating state agency performance would result in more accurate and consistent information about state agency operations. This would in turn help OOE identify areas where the states' programs need to be improved. OOE region chiefs and headquarters personnel recognize that changes need to be made in the criteria being used to evaluate the state agencies, but the Chief, Pipeline Safety Enforcement Division said that personnel shifts and vacancies have delayed OOE's efforts to develop the needed changes.

During their annual visits to each state agency, OOE regional office personnel fill out a monitoring form which contains a series of questions designed to collect information on the state's pipeline safety program, including the number of operators under a state's jurisdiction, number of staff-days spent inspecting pipeline operators, and state program characteristics relating to inspections and enforcement activities, accident investigations, staffing, and funding. Some of the information is obtained from the states' certification applications.² The rest of the data is obtained from discussions with state agency officials and reviews of agency files during the on-site visits to state agencies.

Problems with monitoring form questions and criteria for interpreting responses

Our review of the monitoring form and the views expressed by OOE region chiefs indicate the form contains flaws that weaken the quality of data collected. Some of the types of problems we identified include inappropriate use of yes/no questions and the use of subjective questions without sufficient criteria or guidelines to ensure that all regions interpret the questions consistently.

Most questions on the form are structured to provide "yes" or "no" answers but, in many cases, neither response is appropriate. A question like "Is the operator advised in writing of the decision to assess or issue a compliance order?" does not take into account the possibility that some operators may be notified while others are not. For example, the question could be revised to ask "How often, if ever, are the operators advised in writing of the decision to assess or issue a compliance order?" The possible responses for this question would be on a scale such as "always, usually, about half the time," etc., which would more accurately describe the situation in the state.

The agency official who designed the monitoring form told us that yes/no answers are used to facilitate computer analysis. However, no attempt has been made to enter the monitoring data

²States participating in the gas pipeline safety program are required to submit annual certification applications to show they are meeting the requirements of NGPSA.

into the computer because of personnel changes and the lack of computer personnel to do the project. Moreover, a computer analysis could be performed using a range of answers, such as the scale described above (always, usually, etc.), as well as "yes" or "no."

Another problem is the lack of criteria or guidelines for region chiefs to use in deciding how to respond to questions about state agency programs. The form contains many items that require the region chiefs to make judgments about the "adequacy" or "acceptability" of certain aspects of a state's program, but provides no criteria for them to use in making these judgments. This lack of criteria gives little assurance that the same answers to the same questions have the same meaning from region to region. For example, a question requires the region chiefs to determine whether state agency inspections are "comprehensive," "methodical," and "systematic." However, no guidance is provided for determining what elements of an inspection would make it methodical, comprehensive, or systematic. Therefore, each chief must use his own judgement to make such determinations.

While the monitoring form does address whether state agencies have certain procedures necessary for an effective pipeline safety program, it should place more emphasis on determining if the state agencies used these procedures. For example, the section of the form addressing enforcement activities asks whether the state agency has set up designated administrative procedures to impose and collect fines, but does not determine whether or not the procedures are used when taking enforcement actions. In another case, OOE guidelines for state agency programs state that each operator should receive a comprehensive inspection each year. However, the form does not address how many of the operators under the state agency's jurisdiction were inspected each year and whether or not the inspections were comprehensive. Therefore, we do not believe that enough data was available to determine whether the state agency provided the recommended inspection coverage.

Two region chiefs also suggested that data already reported on the state agencies' applications for certification would be good evaluative data to include on the monitoring form. Examples of this data include the number of enforcement actions taken by the state agencies, the number of noncompliances still open at the end of the year, and a list of staff assigned to the program along with the percentage of time they devote to pipeline safety.

In contrast, other items could be deleted from the monitoring form because they do not measure the adequacy of a state agency's performance. For example, a question that may be unnecessary is whether a state agency inspector is an officer for the regional meetings of federal and state inspectors, because this responsibility is rotated among the state agency chiefs each year.

At the June 1982 region chiefs' meeting, OOE recognized the need to revise the form to better assess the quality of state programs, but such efforts have been delayed due to personnel changes. The person originally responsible for the monitoring form's development switched divisions as a result of the agency's 1982 reduction-in-force. The project to revise the form was given to the Deputy Chief, Pipeline Safety Enforcement Division in June 1982, but he retired in May 1983, prior to making any changes to the monitoring form. In commenting on our draft report, the agency said that a revised form was being developed and that it will be used starting with the monitoring reviews covering calendar year 1984 program activities which commence in January 1985.

Need to update criteria used to
evaluate level of inspection activity

To measure the adequacy of the state agencies' inspection efforts, OOE presently uses criteria developed based on 1975 workload data--i.e., number of operators, miles of pipeline, and number of metered gas services. This workload data was used to calculate the minimum number of staff-years and days each agency should spend inspecting operators. However, the criteria does not take into account other activities that promote pipeline safety and has not been updated to recognize changes in the workload. For example, the criteria

--does not consider workload involving master meter and LP gas operators,

--does not recognize inspector time devoted to such activities as educating operators and personnel responsible for responding to pipeline accidents, such as fire and police personnel, and

--has not been revised to include the additional workload taken on when an agency accepts responsibility for additional categories of operators (e.g., municipals).

OOE and state officials told us that educating operators, particularly those who operate small systems and are generally untrained, is important to pipeline safety. However, OOE's criteria for determining minimum levels of inspection effort does not include any staff time for such training activities. Many of the state officials responding to our questionnaire were of the opinion that the training needs of small distribution operators are high. Of those responding, 79 percent classified the training needs of master meter operators to be great or very great. For municipal and LP gas operators, the percentages were 45 and 41 percent respectively. The Alabama State agency has a full-time staff member responsible for conducting training of operators and public safety personnel.

Several state agencies have disagreed with the minimum staffing levels recommended in OOE's guidelines. In letters to the Minnesota State agency in March 1983 and the Oregon State agency in May 1983, OOE acknowledged that the recommended staffing levels may be outdated. OOE added that it would change its guidelines if the state could demonstrate that it can conduct a satisfactory gas pipeline program with a different number of inspectors, such as fewer than OOE previously recommended.

At an OOE region chiefs meeting in August 1983, the region chiefs were instructed to review the staffing requirement of all state agencies during their annual monitoring visits. Their review of a state agency's staff is to include: the staffing level recommended in OOE's guidelines, an assessment of the current state program, and the region chief's knowledge about changes in the state program structure and workload that have occurred since the guidelines were established. When a state's staffing is under the level recommended in OOE's guidelines, the state is to be required to justify the difference. Likewise, if the region chief recommends a staffing level that differs from the guidelines, he is to explain why. This review procedure was not in effect at the time of our review, however, so we can not comment on the adequacy of or the consistency with which the regions implement the new procedure for determining minimum state agency staffing requirements.

ADDITIONAL GUIDANCE IS NEEDED TO
REDUCE REPORTING INCONSISTENCIES
BY STATE AGENCIES

States' data on their pipeline safety inspection activities contain errors and inconsistencies. OOE uses this data when evaluating state programs. This data is also included in the Bureau's annual report to the Congress.

The region chiefs' reviews of state agency records, in the seven states we visited, often did not detect errors and inconsistencies in states' recording and reporting of inspection activity data. Region chiefs told us that they generally spot check state agency files during their yearly visits to verify the data reported to the Bureau, but we found inconsistencies between data the region chiefs recorded on the monitoring forms, the documentation kept in state files, and information submitted by the state agencies in certification applications.

According to an August 1980 National Transportation Safety Board report on the Department's pipeline safety program data system, state agency records supporting inspection and enforcement actions undertaken and reported in annual certification agreements varied widely in format and completeness among state agencies even though OOE checks the records during monitoring visits. Although the Board recommended that the Bureau develop explicit directions for completing the data forms to improve the quality of information collected, it subsequently agreed with the Bureau's

contention that resources should not be diverted from other data system activities to complete this project. However, we found the problem the Board reported persists--i.e., errors in the data as well as inconsistencies among states and regions as to how the information is compiled, interpreted, and verified.

In 4 of the 7 states we visited to review OOE's monitoring of state programs, we identified problems and inconsistencies in the inspection program activity data being reported, particularly with regard to the number of staff-days spent inspecting operators. According to the western region chief, states use different criteria for reporting inspection days in their certification applications. In California, "inspection days" means time spent actually inspecting an operator, while in Wyoming it also includes travel time to and from the operator. In Illinois an inspection day includes any time an inspector is on site in the field, even if no time is spent determining state compliance with the federal regulations. For example, a visit to an operator to explain the requirements of the federal regulations or time spent at an operator's facilities when no inspection is possible due to the absence of key personnel would still be counted. Thus, non-standard data is being reported in state agency certification applications, state monitoring reports, and the Bureau's annual reports to the Congress.

A review of the statistics presented in the Bureau's 1981 annual report to the Congress and the certification applications on file in the regional offices show other discrepancies. For example, the annual report showed that 1,031 operators were inspected in Louisiana although the state monitoring form covering the same period showed that the state agency had jurisdiction over a total of only 91 operators. The number reported (1,031) was actually the total number of field inspections done by Louisiana's state agency including follow up visits, not how many gas operators were actually inspected.

Several responses to our questionnaire mentioned problems with the state agencies' reporting of inspection and enforcement activities. The Chief, North Carolina Pipeline Safety Section, pointed out the need for standard guidelines to report state agencies' inspection activities because of wide variations in the way the number of inspection days and violations are reported. The state of Louisiana also commented on the need to standardize statistics, definitions, and criteria among the states.

OOE headquarters personnel said that the data submitted on the certification applications often is not consistent among the state agencies and, in some cases, the data reported is incorrect. However, in most instances, they do not follow up with the states because the staff has higher priority work to do. Moreover, regional office personnel are not required to review and comment on the accuracy of program activity data at the time it is submitted by the states.

All five region chiefs favored an increase in the amount of time spent on state agency monitoring. This would provide additional time to check the states' inspection activity data. All chiefs also agreed that more time should be spent with those state agencies with programs that are experiencing problems or undergoing supervisory personnel changes.

IMPROVED CRITERIA IS NEEDED FOR
DETERMINING WHETHER INSPECTORS
ARE QUALIFIED AND HAVE RECEIVED
NEEDED TRAINING

OOE does not have adequately defined criteria to determine whether state inspectors are qualified to perform inspections without supervision. The qualifications of state inspectors vary considerably among the state agencies. Without definitive criteria, however, there is no objective basis the OOE regional office staff can use to determine which of these inspectors, if any, are not qualified.

Both OOE and the states have recognized the importance of inspector training. Even so, OOE has not established what training is necessary for state inspectors and some state agencies have not sent their inspection personnel to the training courses the Department developed for pipeline safety inspectors. The latter problem has increased in recent years because of funding restrictions in many states.

Inspector qualifications
vary among states

The Pipeline Safety Act of 1979 added a provision to NGPSA that requires the Department to report the number and qualifications of state pipeline safety inspectors in its annual report to the Congress. In order to comply, OOE has defined five qualification categories ("A" through "E") into which inspectors are grouped by the state agencies in their annual applications for certification:

- A--Has an engineering degree from an accredited engineering school or is a registered professional engineer, with a minimum of 3 years of experience in gas or liquid transmission and/or distribution pipelines.
- B--Has an engineering degree from an accredited engineering school, or is a registered professional engineer, or has over 10 years of gas or liquid transmission and/or distribution experience which demonstrates in-depth knowledge of pipeline engineering technology, particularly as related to pipeline safety.
- C--Has a college degree or over 5 years of experience as a state pipeline inspector monitoring gas or liquid opera-

tors in regard to their compliance with state and federal pipeline safety regulations.

D--Has less than 5 years of experience as a state pipeline inspector monitoring gas or liquid operators in regard to their compliance with state and federal pipeline safety regulations.

E--Has less than 1 year of experience as a state pipeline inspector monitoring gas or liquid operators in regard to their compliance with state and federal pipeline safety regulations.

The 1982 annual report shows that pipeline inspector qualifications vary greatly by state. Some state agencies classified all inspectors in the top one or two categories while others classified all their inspectors in the lower categories. Eight state agencies had no inspection personnel in the two most highly qualified categories (A and B). These state agencies were Arkansas, Hawaii, Kansas, Nebraska, Oklahoma, Puerto Rico, Rhode Island, and one of the two agencies in Florida (State Treasurer). Twenty agencies had all their inspectors listed in the A and/or B categories, while the other 23 agencies had some inspectors in both the high and low categories.

Nationwide, the distribution of state inspector qualifications in the various categories has been relatively constant since 1979, the first year states were required to report this information. Changes have taken place within states, but increases in qualifications in some states have been offset by a shift to inspectors with lesser qualifications in others.

The qualification categories reported by some states such as Alabama, Arizona, Georgia, Kansas, Michigan, Missouri, New Jersey, Oklahoma, and Texas indicated a decline in the overall level of inspector qualifications. The state of Kansas reduced its criterion for hiring inspectors from a 4-year engineering degree to 2 years of technical training. Kansas state agency officials told us they could not attract engineering school graduates with the salary offered. In their opinion, someone with 2 years of technical school was capable of performing the pipeline safety inspection job. These officials said all employees, regardless of education, need on-the-job training to become fully competent pipeline safety inspectors.

In contrast, the Wyoming and Nevada State agencies took steps to increase salary scales for their professional staff so they would be better able to attract and retain highly qualified inspection personnel.

Concerns about existing qualifications criteria

The Department does not require that state pipeline safety inspection personnel be tested, licensed, or certified to perform inspections. Therefore, the only objective criteria that are available for evaluating state inspection personnel qualifications are the suggested criteria in its guidelines for state gas pipeline safety programs and/or the qualification categories. However, various department personnel told us that these criteria do not always provide an accurate indication of an inspector's qualifications.

OOE's "Guidelines for States Participating in the Gas Pipeline Safety Program" say that each state should employ qualified gas pipeline staff but the only clearly defined criteria relate to the gas pipeline safety supervisor. The guidelines state that the supervisor should possess an engineering degree or be a professional engineer with a minimum of 3 years of pipeline experience. According to the guidelines, state gas pipeline safety personnel should (1) have experience with gas pipeline operators, (2) have an educational background related to gas pipeline operation, and (3) attend training courses and seminars provided by the Department's Transportation Safety Institute. However, the guidelines also state that individuals with less than minimum qualifications may be hired, but that those individuals should not be permitted to conduct independent inspection activities until the supervisor has determined that they have demonstrated the ability and proficiency to perform their duties satisfactorily. The supervisor is not provided criteria, however, for determining if a state inspector is qualified.

The qualifications criteria and the qualification categories considered to be most highly qualified (A, B, and C) contain educational requirements, but three OOE region chiefs told us that they considered prior experience in the gas industry to be the key factor in determining an inspector's effectiveness. The pipeline safety program manager at the Transportation Safety Institute, the Department's center for inspector training in Oklahoma City, agreed that there was little relationship between the qualification categories of state inspectors and their knowledge of the program. He said that if the individual is a petroleum or mechanical engineer, the educational background is very helpful, but other types of engineering degrees are of little value. On the other hand, years of experience in the pipeline industry can be very useful despite less formal education.

In our opinion, the qualification categories do not provide sufficient criteria to make a determination as to whether an inspector is qualified to conduct an inspection without supervision. For example, category "E" has no education or experience prerequisites. It is left up to the individual's supervisor to determine when those individuals are qualified but OOE has not established criteria for use in making such a determination. The

states placed 21 of the 240 inspection personnel employed as of December 31, 1982, in qualification category "E." Since sufficient criteria does not exist to determine if these persons are qualified, unqualified people may be performing inspections.

OOE has not set minimum training requirements for state inspectors

OOE puts a high degree of emphasis on the use of training as a means of improving state agency inspections, but it has not set any minimum training requirements for state agency inspectors and has no effective way to ensure that state agency inspectors receive the needed training. OOE region chiefs and headquarters personnel told us that training courses and periodic meetings of federal and state inspectors help to obtain more consistent inspection results among inspectors from various states. In letters to state agencies and conversations with state officials, OOE officials have encouraged states to send inspectors to training courses and to meetings with other state and federal inspectors. State agencies recognize the importance of training and meetings but some have not sent their inspectors because of their funding and workload situations.

The Associate Director, OOE, said that adequate staffing presupposes qualified inspectors and that recurrent training is necessary to maintain competency. On-the-job training under adequate supervision can be part of the solution to training inspectors. But, state agencies are encouraged to have all their inspectors attend at least one training course annually until they have attended all six courses that make up the Institute's training curriculum applicable to all pipeline inspection personnel. In many states, however, this has not been done. In responding to our questionnaire, the state agencies provided data on training courses attended by 162 state agency inspectors. Twenty-three state agency inspectors had taken all six courses. On the other hand, eleven state inspectors, who have at least 2 years experience in the program, had never taken any of the Institute's training courses. Fifteen of the 50 state agencies (30 percent) responding to our questionnaire reported that they used part-time inspectors in their programs. Over a quarter of these inspectors (10 of 36) have never received any formal training at the Institute.

The Chairman of the National Association of Regulatory Utility Commissioner's Subcommittee on Pipeline Safety also views the training of inspectors as critical to state inspection and enforcement activities. In fiscal year 1984 appropriations hearings, he stated that the Transportation Safety Institute is the one and only location where OOE's regional office engineers and the states' full-time inspectors can obtain pipeline safety knowledge as it relates to ensuring the uniform enforcement of the federal gas and liquid safety regulations. He went on to say that the state of the art in gas and liquid pipeline safety is constantly changing and requires these inspectors to return to the

Institute for updating their knowledge. He told us that state inspectors should be required to attend at least one training course each year until they have attended all the general pipeline safety courses at the Institute. Once completed, he said inspectors should periodically return for a refresher course.

Funding and travel restrictions
have hindered state inspectors'
training opportunities

One of the major problems the state agencies have in sending their inspectors to the Institute is funding. In responding to our questionnaire, over 40 percent of the state agencies (22 of 50) said that out-of-state travel restrictions would prevent inspectors from attending training in 1983. Thirty-six percent of the state agencies (18 of 50) also reported restrictions on travel to out-of-state meetings between federal and state inspectors in 1983. An official of one state agency that had been unable to send its inspectors to the Institute for training the past 3 years said that the Department should require the states to adequately train their inspection personnel or require that the state inspectors possess high enough levels of competency. Another state agency said that training should be mandatory and 100 percent federally funded.

Cognizant of the states' budget limitations, a July 20, 1982, memo from the Chief, Pipeline Safety Enforcement Division, to the Associate Director, OOE, recommended that the Department allocate grant funds to cover 100 percent of the cost of training state personnel at the Institute to "ensure that the state agency personnel are receiving adequate training to satisfactorily enforce compliance with the federal safety standards." (OOE already funds classroom costs for Institute training, but states must pay the inspectors' travel and per diem expenses). This funding proposal was suggested for two reasons: the frequent turnover of state agency personnel and state orders prohibiting out-of-state travel because of economic conditions in the states. The memorandum went on to state that, as a result, many state inspectors do not have adequate training and there is little opportunity for them to get the needed training. RSPA's Office of the Chief Counsel, however, determined that it is federal policy that state governments decide which expenses are necessary to a grant program. Therefore, the Bureau decided not to instruct the states to spend a portion of the grant funds for training activities.

The 1981 Annual Report on Pipeline Safety noted the Bureau's concern that state budget restrictions on travel for training purposes were restricting state personnel from taking advantage of training offered at the Institute. To ensure that new state inspectors obtain the expertise necessary to enforce federal safety regulations, the Department made training available in seminars held in various locations around the country. However, according to the Institute's Program Manager, Pipeline Safety Program, these seminars do not replace resident courses at the

Institute. For example, the seminar covers the topic of welding requirements in 30 minutes whereas the course given at the Institute devotes two days to the subject and allows trainees to use laboratory facilities to obtain "hands on" experience. While training seminars are an alternative to the Institute training when budget constraints prevent out-of-state travel, the Institute is still the best place to receive in-depth pipeline safety inspector training.

The Department's fiscal year 1985 budget proposes a reduction in funds for training. The reduction is predicated on the establishment of tuition charges for non-agency personnel attending pipeline safety training provided by the Department's Transportation Safety Institute. As previously mentioned, many state inspectors are not attending training because states do not have adequate funds to pay the inspectors' travel and per diem expenses. Therefore, if the Congress gives the Department authority to charge tuition for the Institute's training classes, the problem of lack of attendance may be compounded.

CONCLUSIONS

OOE could improve its annual evaluations of the state agency programs. This in turn would allow the OOE regions to better assist the state agencies with improvements to their pipeline safety programs. The monitoring forms, a primary tool used in OOE's annual evaluations and management of state programs, could be revised to provide better data for measuring the state agencies' performances. Furthermore, better written guidance and more objective criteria are needed to (1) remove much of the subjective judgment that must be made in filling out the current form, and (2) provide for more consistency in the evaluations of the different OOE regions.

We found inconsistencies and inaccuracies in the pipeline safety activity data contained in the states' annual certification applications. This data is used both in the regions' annual evaluations and in the Department's annual report to the Congress on pipeline safety. The regions do not now review the data at the time the states report it to OOE headquarters, and spot checks of state agency records during the annual monitoring visits have been insufficient to detect many of the inconsistencies and inaccuracies. A large part of the inconsistencies can be attributed to the need for better definitions and criteria for collecting and reporting this data.

Inspector qualifications and training vary greatly among the state programs, and in recent years budget problems have caused many states to restrict out-of-state travel for training and at least one state (Kansas) to lower its qualifications requirements for new inspectors. To enable OOE regional office staffs to determine whether individual state inspectors are qualified to conduct pipeline safety inspections and are attending needed training, OOE needs to adequately define (1) the criteria needed

to determine whether state inspectors are qualified and (2) the minimum training that state inspectors should receive. Also, with better defined training requirements the state agencies might be able to better justify sending their personnel to the Institute for training. Increased training does not guarantee increased safety, but it should improve the overall inspection capabilities of the state agencies.

RECOMMENDATIONS TO THE
SECRETARY OF TRANSPORTATION

We recommend that the Secretary of Transportation direct the RSPA Administrator to improve state agency inspection activity reporting and OOE's monitoring of state agency pipeline safety programs by

- using more performance-oriented measures to evaluate state agency actions in enforcing federal pipeline safety standards, which would include revising the monitoring form to eliminate irrelevant questions, redesigning other questions to provide more meaningful data, and developing additional questions to evaluate state program performance;
- providing the regional offices with additional guidance to assure consistent interpretations of the questions on the monitoring form--for example, what must a state be doing before its performance is to be considered "adequate" or "acceptable";
- updating criteria used to determine the minimum level of state inspection activity, or establishing new criteria for this purpose;
- clarifying instructions provided for data collection and reporting by state agencies, particularly for data on inspection days, operators inspected, non-compliances, and enforcement actions; and
- having the OOE regional offices review and advise OOE headquarters as to the probable accuracy of the program activity data at the time the state agencies submit such data and devote more time to verifying the accuracy of this data during their annual monitoring visits.

In addition, the Secretary of Transportation should direct the RSPA Administrator to better define state inspector qualifications and training requirements and assist the states in obtaining the needed inspector training by

- identifying what knowledge and skills are necessary to conduct effective inspections of operators;
- determining what training the states' inspection workforce needs to conduct effective inspections; and

--working with the states to determine the most efficient and effective way for all state inspectors to obtain the identified training needs within a reasonable time period.

These recommendations focus on the Department's role and responsibilities as contained in existing legislation. However, we recognize that implementing these recommendations may require additional resources. With respect to this, in chapter 5 we recommend that the Department develop and present to appropriate congressional committees alternatives for assuring the safety of intrastate pipelines, including possibly redefining the federal role and responsibilities and related resource requirements.

AGENCY COMMENTS AND OUR EVALUATION

The Department commented that it has an effort underway to improve its approach for monitoring state programs. A revised form is being developed for use in the monitoring reviews covering calendar year 1984 state program activities and additional guidance for the regional office staff is to be provided prior to the commencement of these reviews in 1985. The Department also said that a review of program activity data reporting requirements, including the criteria for inspection days, was also underway. The Department did not indicate, however, whether it would have the regional offices review and advise headquarters as to the accuracy of the program activity data submitted by the state agencies as we recommended. Since the Department is still in the process of revising its monitoring form and determining what its criteria for program activity data will be, we could not determine if the actions being taken will be adequate to correct the problems we identified.

The Department said that (1) the knowledge and skills inherent in the Transportation Safety Institute training program are the minimum level of competency necessary for a state agency inspector, (2) a new inspector should acquire this level within 3 years of assignment as an inspector, and (3) it will study the practicality whereby the Institute's training classes can be taken to the states. The Department's fiscal year 1985 budget request proposes a reduction in training funds which would be made possible in part by requiring the states to begin reimbursing the Department for classroom costs at the Institute. Since funding problems have been a major reason for states not sending their inspectors to the Institute for training, the question remains whether all state inspectors will obtain the necessary training.

The Department stated that proof of inspector competency is obtained by a testing program initiated in fiscal year 1983 and by regional office personnel's observance of state field performance. The testing program involves tests administered on each Institute course before and after the trainees' completion of the course but will not reach those inspectors who do not attend the course or

those who took the course prior to fiscal year 1983. Furthermore, the regional offices have not been provided guidelines to use in their observances of the state inspectors' field performance. Therefore, the actions taken by the Department are a positive step but further actions are required to ensure the proper training and competency of all state inspectors.

CHAPTER 4

POTENTIAL FOR REGULATING ADDITIONAL

PIPELINE FACILITIES

In the past there have been suggestions that certain gas and liquid pipeline facilities not presently covered by the federal regulations be included. The majority of state inspection agencies told us that there is a need to regulate gas gathering lines located in rural areas and gas service lines located between the customer's meter and the customer's building or structure. Also, in the past, the Material Transportation Bureau's annual reports to the Congress have stated that the Bureau would (1) study the need to regulate pipelines transporting certain liquids not currently classified as hazardous liquids and (2) investigate the need to regulate certain hazardous liquids terminal storage facilities. To date, the Bureau does not have sufficient information to make a decision whether these pipeline facilities should be included in the program, but feasibility studies appear warranted.

In some cases, program legislation would need to be amended in order to regulate these pipeline facilities. Current legislation provides the Secretary of Transportation with the authority to determine which substances and materials transported by pipeline are considered hazardous liquids, and the Bureau has stated that HLPESA provides more authority to regulate storage facilities "incidental" to the movement of hazardous liquids than it is now exercising. On the other hand, NGPSA specifically excludes rural gas gathering lines and the Bureau has determined that NGPSA does not envision the Department regulating gas service lines.

RURAL GAS GATHERING LINES

Non-rural gas gathering lines are currently regulated but rural gas gathering lines are not and differing opinions exist as to the need for regulating rural gas gathering lines. Most of the state inspection agencies we asked were in favor of regulation, and in the past the National Transportation Safety Board and we have recommended such regulation. The Bureau and organizations representing the industry contend that there is no need to regulate these pipelines. Meanwhile, congressional committees have been divided on the issue.

In the past the National Transportation Safety Board and we have reported on the safety problems associated with rural gas gathering lines and recommended that the regulations be amended to cover these lines--the Board in a February 4, 1976, report and we in our previously mentioned April 1978 report. The Department's response to both recommendations, dated June 17, 1976, and

June 26, 1978, respectively, was that as a first step in defining the scope and nature of the safety issues involved it would extend accident reporting requirements to include rural gas gathering lines.

In a February 1983 report on actions taken on National Transportation Safety Board recommendations, the Bureau concluded that sufficient information was not available to justify extending the federal regulations to rural gas gathering lines. It stated that the non-rural gathering lines which account for 34.7 percent of all gas gathering lines (23,600 of 68,100 miles) are already subject to the federal regulations and that the severity and frequency of incidents associated with these non-rural gathering lines has not been large when compared to gas transmission and distribution lines. For example, since 1970 there had been a total of 22 fatalities and injuries associated with non-rural gas gathering line incidents, as compared with 442 fatalities and injuries resulting from gas transmission line incidents. Therefore, rather than extending the current regulatory requirements to rural gathering lines, the Bureau had decided to extend its incident reporting requirements to include these lines so that it would be able to determine the scope, nature, and cost-beneficial aspects of safety problems associated with them.

On several occasions the Bureau has proposed, discussed, and requested comments on changes to gas pipeline operator reporting requirements, including the requirement that operators report accidents on rural gas gathering lines. In 1976 the Bureau solicited and received comments from various state agencies and the pipeline industry and its affiliated associations. In June 1978 a notice of proposed rulemaking was published in the Federal Register, but a final rule was not promulgated. Further suggestions for revising the reporting requirements were solicited in 1981, and the Technical Pipeline Safety Standards Committee¹ considered the subject at its meeting in November 1982.

On March 31, 1983, a second notice of proposed rulemaking was published in the Federal Register. The proposal provided for telephonic reports of rural gas gathering line incidents, but it stated that no written incident or annual reports would be required until the telephonic reporting from these operators had

¹The Department's Technical Pipeline Safety Standards Committee, established pursuant to NGPSA, is a 15-member body made up of five representatives of government, including two state commissioners; four from the natural gas industry; and six from the general public. The committee evaluates proposed gas pipeline safety standards and reports to the Bureau on their feasibility, reasonableness, and practicability. A similar committee exists for the hazardous liquids program.

been analyzed over a sufficient period of time to determine the magnitude of incidents and to determine whether such reports were warranted.

The final rule published in the May 3, 1984, Federal Register states the Bureau has concluded that rural gas gathering lines are not at this time a safety problem. Therefore, the final rule retains the existing exclusion of these lines from the Department's incident reporting requirements. The Bureau stated that upon review of actual leak reports for non-rural gathering lines covering the period 1970 to 1982, it found that gathering lines have a much lower frequency of accidents than other gas pipelines and this review supports the views of the majority of those commenting on the proposed rulemaking, who contend that rural gas gathering lines cannot be shown to be hazardous to the public.

In commenting on the Bureau's March 1983 proposed rulemaking, the American Petroleum Institute and American Gas Association contended that the reason rural gas gathering lines have been excluded from regulation is that such lines present a minimal safety hazard. As evidence, the Institute referred to a House of Representatives report [H.R. Report No. 90-1390 (1968)] and a report of the Senate Committee on Commerce, Science, and Transportation [S. Report No. 96-182 (1979)]. These two reports are part of the legislative histories of the 1968 and 1979 acts.

The 1968 House report stated that testimony was offered as to the safety record of these lines and that no staff-days had been lost by the pipeline operators as the result of accidents on rural gathering lines during the past 6 years. However, we noted that testimony presented at the same hearings stated that there had been 3 accidents during the 6-year period that had resulted in lost staff-days but none in 1966 or 1967.

In discussing the exclusion of hazardous liquids rural gathering lines, the Senate Committee report stated

"On the basis of discussions with the Department of Transportation and the affected industry, the Committee found that such an exemption was appropriate because such lines present insufficient risk to life and property to require regulation."

This comment may not be relevant, however, since the Senate report was discussing hazardous liquids lines, not gas gathering lines.

The House Committee on Interstate and Foreign Commerce, in its May 1979 report (H.R. Report No. 96-201, Part 1), stated that the Committee was very mindful of the extremely hazardous nature of rural gathering lines and of the large quantities of natural gas that are lost every year from leaks in these systems. The

Committee report went on to state that, since the Department had testified it was considering adopting regulations which would cover rural gathering lines, it would defer recommending additional or more specific legislation. As indicated previously, however, the Department is not currently considering regulating rural gas gathering lines.

Of the 50 state agencies responding to our questionnaire, 26 answered that they either "strongly supported" (10) or "supported" (16) regulating rural gas gathering lines. Another 19 agencies expressed no opinion or were undecided, and only 5 were opposed. One state (Michigan) said that it already regulates some rural gathering lines.

In November 1980, the West Virginia State agency sent the Bureau a letter requesting that the section of the federal regulations covering the installation of plastic pipe be amended to include rural gathering lines. The reasons given were that plastic lines are cheaper and easier to install but are susceptible to damage by lawn mowers, brush hogs, deer rifle punctures, and forest fires. Furthermore, much of the plastic pipe used in these gathering lines does not meet the plastic pipe specifications for jurisdictional gas lines. Failing to get the federal regulations amended, West Virginia established a state requirement that all plastic gathering lines be buried beginning in 1984.

One OOE region chief stated that he favored regulating rural gathering lines because they are as risky as transmission or distribution lines and that sometimes there is a problem distinguishing whether a line is a gathering line or a transmission line. In its response to our questionnaire, Wyoming also pointed out the problem of determining whether a line is a gathering line or transmission line.

GAS SERVICE LINES

Currently, the federal regulations apply only to those parts of a service line that transport gas from a common source of supply to a customer's meter or the connection to a customer's piping, whichever is closest to the customer's building. State inspectors have recommended that service lines located between the customer's meter and building be covered by the pipeline safety regulations. The Bureau's Office of Pipeline Safety Regulation has determined, however, that NGPSA did not envision that such lines be covered.

Of the 50 state agencies responding to our questionnaire, 30 responded that they either "strongly supported" (17) or "supported" (13) amending the regulations to cover underground service lines. Another 12 were undecided or had no opinion, 5 were opposed, and 3 did not respond to the question.

A May 1981 letter from state officials representing state inspection agencies in 4 of the 5 OOE regions to the Director, Materials Transportation Bureau, recommended that the federal pipeline safety regulations be amended to require that gas meters and service regulators be located at or near the point of pipe entrance into the building being served. According to the state representative from Tennessee, such a change is needed so that utilities can not avoid regulation of a service line by placing the meter at the property line and having a long fuel line. He said these fuel lines do not have cathodic protection (a means for controlling corrosion) and represent a large potential hazard. He said that more of this can be expected as utilities look for ways to reduce construction expenses and avoid liability and jurisdiction of regulators.

The Bureau did not accept the states' recommendation. In responding, the Director said that in the Department's view federal authority over the transportation of gas ends with its sale and delivery to the ultimate consumer. The response went on to say that a customer's line should be covered by local safety codes, not federal regulations.

In a February 22, 1983, response to an OOE suggestion relating to operator responsibility for inspecting service lines, the Bureau's Associate Director for Pipeline Safety Regulation stated that the program legislation does not intend the Department to regulate service lines.

"Requiring operators to inspect their customers' piping for leaks would go beyond the regulatory authority granted by the Natural Gas Pipeline Safety Act of 1968. Essentially, we are authorized to regulate the transportation of gas in or affecting interstate commerce. We have repeatedly stated that this jurisdiction ends when gas is sold and delivered to the customer. Thus, except when there is a downstream meter, as indicated by the service line definition, requiring operators to check customer piping would apply the safety standards in an area unintended by the Act."

OTHER POTENTIALLY HAZARDOUS LIQUIDS TRANSPORTED BY PIPELINE

The hazardous liquids pipeline regulations adopted thus far apply only to pipelines that carry petroleum, petroleum products, and anhydrous ammonia. These commodities comprise a large percentage of all hazardous liquids that are transported by pipeline. Still other commodities such as liquefied carbon dioxide, ammonium hydroxide, ethanol, and methanol are being transported or considered for movement by pipeline. While movement of these commodities by rail and truck is regulated by the federal government, their transportation by pipeline is not.

Section 202 of HLPESA defines hazardous liquids as petroleum or any petroleum product, and any substance or material which is in a liquid state (excluding liquefied natural gas) when transported by pipeline facilities and which, as determined by the Secretary, may pose an unreasonable risk to life or property when transported by pipeline facilities. Under this definition, petroleum and petroleum products are required to be subject to federal regulations, and the Secretary of Transportation has discretionary authority to apply the regulations to other substances and materials.

In amending the federal regulations to reflect the provisions of HLPESA, in July 1981, the only non-petroleum commodity included was anhydrous ammonia. The reasons given were that the hazards associated with anhydrous ammonia were well known and that it is the principal hazardous liquid, in addition to petroleum and petroleum products, transported by interstate pipeline facilities. According to the Department, the extent and nature of the risks of pipeline movements of other liquid materials needed to be examined and an affirmative determination made concerning which, if any, posed the kind of risk that would justify classifying them as hazardous liquids for purposes of pipeline safety regulation.

In hearings before a subcommittee of the House Committee on Appropriations in March 1981 and February 1982, the Department stated that one of its liquid pipeline program objectives was to determine which other commodities transported by liquid pipelines, if any, pose a great enough risk to require classification and regulation as hazardous liquids. The results of this survey were then to be used to guide future regulations development and enforcement policy.

During a meeting of the Technical Hazardous Liquid Pipeline Safety Standards Committee in December 1981, there were discussions of the hazards posed by carbon dioxide (CO₂) and ammonium hydroxide pipelines but no conclusions were reached regarding the need to expand the regulations to cover additional commodities. Furthermore, the Associate Director, OOE, told the Committee that because of funding limitations, the Bureau would not be undertaking the study to identify other hazardous liquids being transported by pipeline.

In its Annual Report on Pipeline Safety for calendar year 1981, transmitted to the Congress in early 1983, the Bureau no longer mentioned performing a study but stated that there is a need to "monitor" the pipeline transportation of these other products to determine whether they pose an unreasonable risk to life and property and whether there is a need for safety regulation. As of March 1984, the only activity the Bureau had

undertaken in this area was a study of the movement of liquid hydrogen by pipeline.

In our review of OOE central region activities, one of the inspectors told us the region became aware that a pipeline used to transport ammonium nitrate solution (used in fertilizer) was having problems with corrosion-caused leaks. But, when the region checked with headquarters, they were told that the pipeline was not under its jurisdiction because the product transported was not covered by the federal regulations. Ammonium nitrate solution is similar to crude oil, which is covered by the regulations, in that the hazards posed by pipeline spills are primarily to the environment (e.g., contamination of water supplies) and not personal injuries.

HAZARDOUS LIQUIDS STORAGE FACILITIES

The Bureau's Annual Report on Pipeline Safety for calendar year 1981 states that another area of concern is the storage of hazardous liquids incidental to pipeline transportation. The Hazardous Liquid Pipeline Safety Act of 1979 applies broadly to all such storage, but the only storage facilities currently regulated are those classed as breakout tanks, or tanks used in the course of pipeline transportation. Terminal storage facilities, including underground cavernous storage facilities, operated by pipeline companies are not regulated.

In the July 27, 1981, Federal Register announcement of the final rule amending the federal regulations to reflect the provisions of HLPESA, the Bureau stated that it is clear to the Bureau that the HLPESA authority to prescribe and enforce safety standards with respect to storage "incidental" to the movement of hazardous liquids by pipeline is far broader than it is currently exercising. For example, although the Bureau does not have any immediate plans for such application, the HLPESA would authorize it to establish minimum federal design, construction, testing, operating and maintenance standards for hazardous liquids pipeline terminal tank farms and various forms of underground storage.

According to the Bureau's annual report for calendar year 1981, the potential for catastrophic cavernous or salt dome storage leak incidents is ever present and there is growing support for regulatory action in this area. Accordingly, the Department would investigate the need for such regulation and whether any regulations should also apply to independently owned terminal storage facilities.

The Bureau's director said that in developing the hazardous liquids program regulations the agency decided to specifically include only those storage facilities which are unquestionably a part of the pipeline operation, that is, breakout or surge tanks.

This was done to facilitate the pipeline operators' acceptance of the regulations. He said that there are additional storage facilities which could be added to the regulations without amending the HLPISA. However, in determining which additional facilities should be regulated, they would need to determine to what extent, if any, the facilities may be covered already by regulations issued by other federal agencies, such as the Department of Energy. As of January 1, 1984, the Bureau had not made such a determination.

CONCLUSIONS

There are a number of pipeline facilities and commodities transported by pipeline that are not presently covered by the federal pipeline safety regulations which may warrant coverage. These include: rural gas gathering lines, gas service lines, hazardous liquids storage facilities, and various commodities such as liquefied carbon dioxide, ammonium hydroxide, ethanol, and methanol.

The Bureau does not currently have sufficient information to decide whether these pipeline facilities and/or commodities should be regulated. Therefore, additional information needs to be obtained prior to making a decision on the need to expand the pipeline safety program to cover these additional facilities and/or commodities. One reasonable way of obtaining data on the safety risks involved would be to require the operators to submit accident reports similar to those the Bureau proposed for rural gas gathering lines.

Current program legislation gives the Department authority to determine what commodities transported by pipeline are to be considered hazardous liquids and to regulate storage facilities "incidental" to the movement of hazardous liquids by pipeline. The legislation specifically excludes rural gas gathering lines and the Bureau has determined that the legislation does not envision the Department regulating gas service lines.

RECOMMENDATIONS TO THE SECRETARY OF TRANSPORTATION

We recommend that the Secretary instruct the Administrator, RSPA, to

- gather and analyze the data necessary to determine whether there are sufficient hazards, involving personal injury or environmental damage, to warrant regulation of rural gas gathering lines, gas service lines, hazardous liquids storage facilities, and substances transported in liquefied form that are not presently regulated, and

--take appropriate actions to amend the regulations and, in the case of rural gas gathering lines and/or gas service lines, propose the legislation needed to provide coverage of those additional pipeline facilities that warrant coverage.

While we recognize that the Department does not have adequate resources to carry out the existing inspection program and that these recommendations may further tax these resources, it still has the responsibility to ensure safe pipeline operations. This responsibility includes determining if other pipeline facilities and commodities transported by pipelines should be regulated. In chapter 5, we recommend that the Department develop and present to appropriate congressional committees alternatives for assuring the safety of intrastate pipelines. In its analysis of various alternatives, the Department should consider the possible need to regulate these other pipeline facilities and commodities and the impact this would have on the inspection resource requirements of the Department and the states.

AGENCY COMMENTS AND OUR EVALUATION

The Department commented that it currently has information in hand or readily available that provides a sufficient basis for decisions as to the necessity for expanding regulatory coverage to additional pipeline facilities. We do not agree. We believe that additional data is needed on the number and kinds of pipeline facilities that exist and the risks involved with each.

The Department's final rule on gas pipeline accident reporting requirements had not been issued at the time it commented on our draft report. The Department made the comment, however, that none of the comments received on its March 1983 proposed rule-making favored expanding the accident reporting requirements to include rural gas gathering lines. However, only 9 of the 75 of those commenting criticized the requirement for reporting accidents on rural gathering lines as unnecessary or inappropriate and all of those were from the regulated industry. As we stated on pages 48 and 51, the National Transportation Safety Board and 26 of the 50 state agencies responding to our questionnaire said that they favored regulating rural gas gathering lines. Therefore, despite the Department's recent decision to not require operators to report accidents involving rural gas gathering lines, we still believe that the Department needs to gather data on these lines.

The Department said that if government attention is required for the safety of gas service lines located downstream of the meter it believes that state and local agencies should provide that attention. As we stated on page 51, 30 of the state agencies responding to our questionnaire said they supported amending the

federal regulations to include underground service lines. As discussed above, if such service lines are to be regulated, the responsibility should be determined when analyzing any changes to the federal role and responsibility.

The Department stated that it is monitoring the need to regulate hazardous liquids storage facilities. The Department said that its monitoring consists primarily of contacts with industry trade associations, professional organizations, the Technical Hazardous Liquid Pipeline Safety Standards Committee, the public, and the media.

We do not believe that the data gathering efforts described by the Department will provide the reliable data that is needed to make an informed decision on which if any of these facilities should be regulated. Further, as we discussed in this chapter, we do not believe that the Department has sufficient data to assess the possible environmental and safety impact of these facilities and commodities. Accordingly, we still believe that the Department needs to gather such data to determine if sufficient hazards exist to warrant federal regulations of any of these facilities.

CHAPTER 5

ALTERNATIVES FOR AN EFFECTIVE FEDERAL

PIPELINE SAFETY PROGRAM

The Department does not have adequate resources nor a viable means to carry out its current program responsibilities. As we discussed in chapter 2, the Department has not provided adequate inspection coverage of the interstate and intrastate pipeline operators for which it has responsibility. A major reason for this is that the Department has been responsible for a large number of intrastate pipeline systems (including 255 municipal and an estimated 27,400 master meter operators) but has not budgeted for the resources needed to inspect these systems. This problem could worsen if the Department assumes responsibility for additional intrastate systems as it appears likely at this time.

A few states have expanded their gas pipeline safety inspection programs in recent years. Citing staffing and funding constraints, however, most states indicated that they do not plan to assume responsibility for (1) the intrastate gas operators for which the Department is now responsible or (2) the intrastate hazardous liquids pipelines located in their states when the federal safety standards are amended to cover these pipelines, now expected sometime toward the end of 1984. Moreover, some states have reduced their inspection activity and a few are considering dropping out of the program. Therefore, the number of intrastate operators under the Department's jurisdiction is likely to increase.

Since the states' participation is voluntary, the Department does not have a viable means of requiring the states to correct deficiencies in their programs and/or assume responsibility for additional intrastate pipeline systems. Therefore, changes are needed to bring program resources in line with program objectives and responsibilities. The Department and the state agencies should develop several alternatives for sharing federal and state responsibilities for ensuring the safety of intrastate pipelines. The alternatives and an estimate of resource requirements associated with each need to be presented to the appropriate congressional committees for a decision on which alternative to pursue.

PROBLEMS WITH STATE PARTICIPATION IN THE PIPELINE SAFETY PROGRAM

Although a few states have expanded their gas pipeline safety inspection programs in recent years, states experiencing staffing and/or funding constraints have already reduced or are planning to reduce their inspection activities and have indicated that they will not assume jurisdiction over the intrastate gas operators under the Department's jurisdiction. In addition, many states have indicated that they will not participate in the intrastate

hazardous liquids pipeline safety program scheduled for implementation sometime toward the end of 1984 because of resource and staffing limitations.

Limited federal and state funding
has affected the inspection coverage
of some gas pipeline operators

Since the grant-in-aid program began in 1971, state agency inspection activity has increased greatly. In 1982 the state agencies utilized 21,500 staff-days performing inspections of pipeline operators compared to 11,608 staff-days in 1975. There has been a corresponding increase in state agency program expenditures, from about \$2.8 million in 1975 to an estimated \$9.4 million in 1983. Since 1981, however, the levels of federal reimbursements have been less than the 50 percent allowed by NGPSA and many states have reduced their inspection activity. While federal grant money has remained at \$3.5 million for fiscal years 1983, 1984, and 1985 (proposed), the states' costs have increased which results in them paying a larger percentage of program costs. The chart on the following page shows the levels of state program expenditures and federal reimbursements for the period 1975-83.

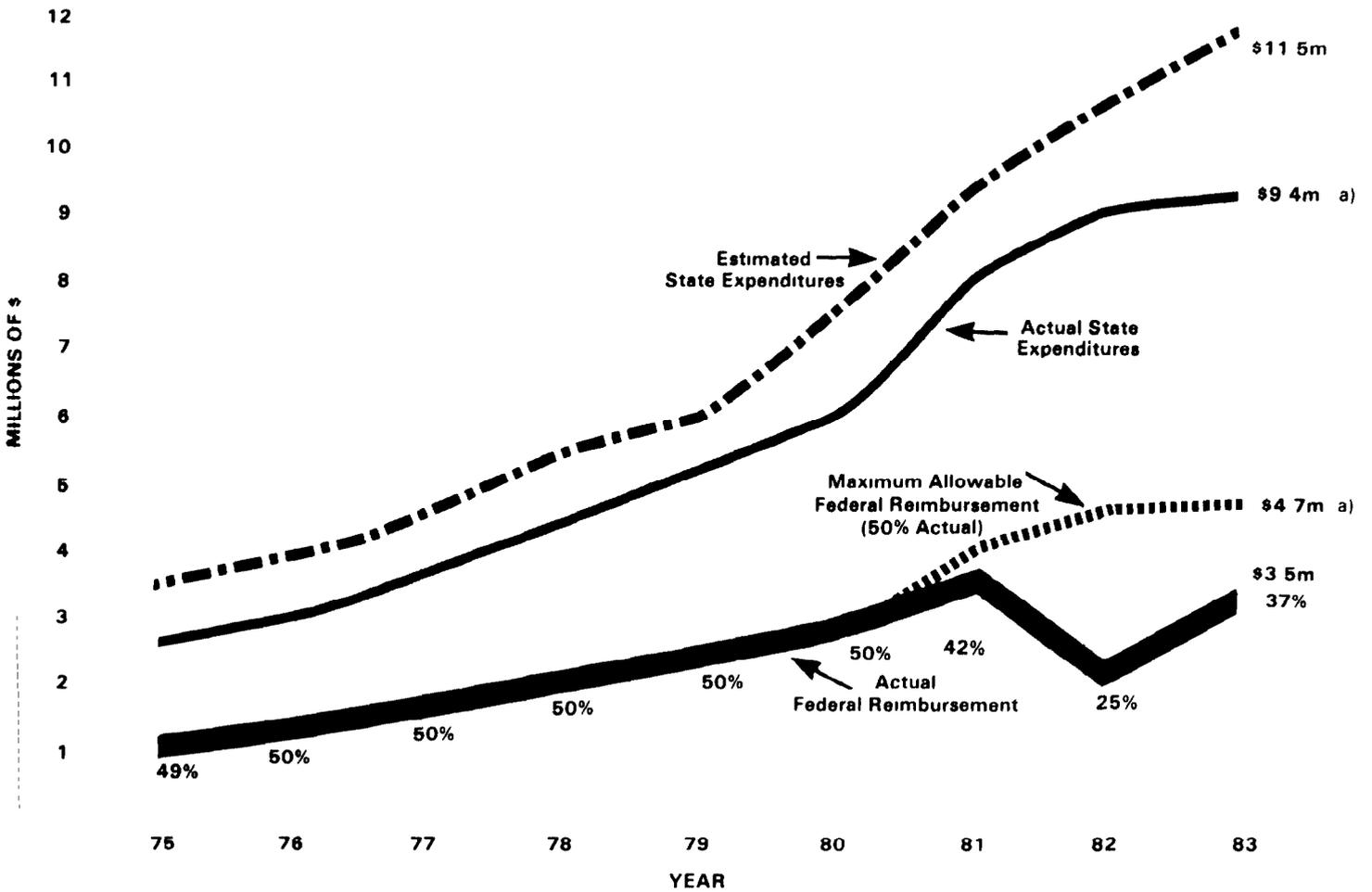
Several states are continuing to expand their inspection programs. For example, Arizona assumed jurisdiction over master meter operators in 1983 and New Mexico is increasing inspections of master meter and municipal gas systems operators. However, because of various problems, mainly funding, some states are finding it difficult to maintain, let alone expand their programs.

In responding to our questionnaire, about half of the state agencies said they received state funds to offset between 50 and 100 percent of the reduction in federal reimbursements. Approximately the same number of agencies said that the reduction had little or no impact on their programs and level of inspection activity. On the other hand, fifteen state agencies replied that they had to cut back their inspection activities by reducing the frequency of inspections and/or discontinuing inspections of certain categories of operators. For example,

--Illinois state agency officials told us that time devoted to gas pipeline inspections is steadily decreasing because of the instability of federal funding. The agency has begun using its pipeline inspectors in its water and electricity programs so they can be easily transferred to these other areas if federal funding of the pipeline safety program continues to decrease.

--Rhode Island is considering discontinuing inspections of master meter operators, and Florida, Michigan, and Montana are reducing inspections of master meter operators.

State Pipeline Safety Program Expenditures



a) 1983 amounts are estimates

--Ohio is reducing the frequency it inspects operators in some areas from once every 12 months to once every 18 months.

The states' responses to our questionnaire indicate that they do not plan to assume jurisdiction for many of the intrastate gas pipeline systems that are currently under the Department's jurisdiction (including 255 municipal and an estimated 27,400 master meter operators). None of 6 states participating in the pipeline safety program that do not have jurisdiction over their municipal gas systems (California, Georgia, Kentucky, Louisiana, Pennsylvania, and Virginia) plan to assume jurisdiction and only 2 of the 20 states not having jurisdiction over master meter systems said they were planning to assume jurisdiction. Those 2 states (Hawaii and Nevada) account for only 108 of the master meter systems currently under the Department's jurisdiction. The reasons the

states gave for not assuming jurisdiction over these intrastate gas systems included (1) additional staff and/or funds would be needed and/or (2) state laws would need to be changed.

The Louisiana state agency, for example, had planned to assume safety jurisdiction over its 100 municipal operators, perform inspections of all public and private institutions, and increase surveillance of pipeline facilities located within coastal waters and the ecologically sensitive coastal zone. However, a sharp drop in state revenues forced this announced program expansion to be cut back. In a March 1983 letter, Louisiana's Chief of Pipeline Safety told OOE that:

"The state of Louisiana, like other states, has experienced a sharp drop in traditional revenues due to the recession . . . In order to cope with this (the state's) sudden drop in revenues and balance the budget (which is required by the state Constitution), the state has embarked on a campaign of substantial, immediate budget cuts for the next fiscal year. The pipeline safety program is being adversely affected by these measures, and we have been forced to lower the estimated total cost submitted with our 1983 Pipeline Safety Grant Program application from \$1,083,413 to \$690,000.

This diminished funding is taking its toll on our program and threatens its very existence as an effective force in view of the fact that we had already made considerable commitments to improve and expand our program in those areas where we are legally bound to do so as well as others that demand attention (see above). We have added personnel and increased capital outlays in the belief funding was assured, and now find ourselves forced to virtually abandon these commitments."

In April 1983, the Chairman of the National Association of Regulatory Utility Commissioner's Subcommittee on Pipeline Safety sent a questionnaire to the state pipeline safety representatives. In responding to the questionnaire, 4 state agencies (Georgia, Indiana, Iowa, and Wisconsin) replied that they would consider dropping out of the gas pipeline inspection program if federal funding was not increased, 26 state agencies said that they would remain in the program, and 9 state agencies were undecided. As of January 1984, none of the states had made a final decision to drop their programs but in responding to our questionnaire, Indiana and Iowa said that it was still a possibility.

NGPSA holds the federal government responsible for the safety of intrastate pipelines and therefore the Department is obligated to provide the necessary inspection coverage of these pipelines if a state does not voluntarily assume the responsibility. Since the federal government reimburses the states for up to half the cost of operating a state program but would have to pay the entire cost of federal inspections of the same pipelines, there is little

monetary incentive for the states to assume additional pipeline safety inspection responsibilities. The Chairman of Indiana's Public Service Commission pointed out this situation when he said that:

"This has not been an instance where the federal government has paid half the costs of the performance of a state responsibility. Quite the contrary, this is a situation in which the state of Indiana has paid 50% of the costs of administering a federal program. The only benefit of this program to the state has been the opportunity to offer a more responsive and sensitive approach to the administration of the federal laws and regulations in Indiana than federally employed inspectors might offer."

Many states are unlikely to participate in the hazardous liquids pipeline safety program

A cooperative federal/state inspection program for intrastate hazardous liquids pipeline facilities, similar to the existing cooperative program for intrastate gas pipelines, is scheduled for implementation sometime toward the end of 1984. At least four states (Arizona, California, Texas, and West Virginia) have decided to participate in the program but many states are still undecided or have made the decision that they do not wish to participate. Reasons given by the states for not participating in the program include funding problems, the state's utility regulatory commission or legislature disapproving of or not deciding on participation, and the small amount of liquid pipeline in the state. The inspections of intrastate pipelines in those non-participating states will be OOE's responsibility, thereby placing further demands on OOE regional office inspectors who currently do not have enough time to adequately inspect the gas and interstate hazardous liquids pipeline operators for which they have responsibility.

In hearings before the Senate Committee on Appropriations in March 1983, the Department estimated that 15 staff-years would be needed to inspect all intrastate liquid pipeline operators. If the 10 to 15 states with the most operators participate in the program, the increase in OOE's workload would be minimal. To the extent that they do not enter the program and OOE assumes the additional responsibility for inspections of intrastate liquid pipeline operators with its current field inspection staff, however, a corresponding reduction would take place in OOE's inspection effort in the gas pipeline safety program.

According to OOE data compiled in June 1983, 39 states have 293 intrastate hazardous liquids pipeline operators but 234 (80 percent) are located in the 14 states listed in the following table. OOE classified 6 of the 14 states as having "high" interest in participating in the cooperative federal/state

program, 2 had "medium" interest, 5 had "low" or "no" interest, and the level of interest was unknown for another. Half of the 14 states already had the state legislation necessary to assume jurisdiction.

<u>State</u>	<u>Number of operators</u>	<u>State legislation exists</u>	<u>Level of interest in program participation</u>
Texas	72	yes	medium ¹
Louisiana	27	no ²	high
California	17	yes	high ¹
Oklahoma	17	no ²	high
Wyoming	14	yes	high
Kansas	13	yes	high
New Mexico	13	yes	unknown
Michigan	12	no ³	medium
Montana	11	yes	low
Illinois	10	no ³	low
Florida	9	no ³	low
Colorado	7	no ³	low
Kentucky	6	no ³	no
Ohio	<u>6</u>	yes	high
Total	<u>234</u>		

¹In responding to our questionnaire, Texas said that it had already hired 6 additional inspectors for this program and will begin inspecting intrastate hazardous liquids pipelines in 1984. California also implemented an intrastate hazardous liquids pipeline program in 1984.

²Requesting legislation.

³Not interested.

According to OOE, 17 of the 39 states with intrastate liquid pipelines did not have the state legislation necessary to assume jurisdiction and were not interested in participating. A somewhat similar response was received from the 42 states that responded to a National Association of Regulatory Utility Commissioners questionnaire sent to state pipeline safety representatives in April 1983. In response to the question, "If there were funds available for 50 percent reimbursement for your participation in the liquid program, would you participate?" Nineteen said that they would be interested, 12 said they were not interested, and the remainder had not reached a decision.

Some of the comments that have been made by the states with the largest numbers of operators regarding participation were from:

- Louisiana (27 operators) - It could not guarantee participation even if reimbursed 50 percent because of the state's budget situation.
- Oklahoma (17 operators) - The state will pursue jurisdiction in 1984 if the federal government provides 50 percent of the funds.
- Kansas (13 operators) - The Governor said that Kansas was not interested in participating in the program at this time. He had asked the state corporation commission to thoroughly analyze the advantages and disadvantages but said that with the rapid delegation of federal responsibilities to the states in other areas, the state is looking carefully at all new assumptions of responsibility.
- Michigan (12 operators) - It will not participate in the liquid program until the gas program is adequately funded by the federal government. If reasonably assured of 50 percent federal funding of both the gas and liquid programs, then it would participate.
- Illinois (10 operators) - The Commission considered the program and decided not to participate.
- Florida (9 operators) - Both state pipeline safety inspection agencies decided against participation.
- Colorado (7 operators) - The state legislature's joint budget committee rejected participation in the program.
- Kentucky (6 operators) - The Governor said that the state was not interested in the program at this time due to the present economic conditions and non-availability of state funds to support such a program.

States with fewer operators (New York, Minnesota, Virginia, and Wisconsin) also mentioned funding uncertainties as a problem.

In a December 7, 1982, letter to the states, OOE commented that the success of having states assume jurisdiction for intrastate hazardous liquids pipelines depends to a large extent on the availability of federal grant-in-aid funds and that it was OOE's objective to assure that this grant request is considered in the federal budget process. The Department's fiscal year 1984 budget submission to the Office of Management and Budget (OMB) requested \$500,000 for a hazardous liquids pipeline grant-in-aid program. OMB's allowance contained no funding for this program. The Department appealed to OMB to have these funds restored, stating that the requested funds were essential to obtaining state participation in the program and that the cost of providing federal inspection and enforcement coverage of the intrastate liquid pipeline operators would be far more costly than restoring the requested grant-in-aid funds. The appeal was denied and no such

funds were requested in the Department's budget sent to the Congress. The Department's fiscal year 1985 budget also did not request grant-in-aid funds for this program.

OOE LACKS A VIABLE MEANS OF GETTING
STATES TO INCREASE OR IMPROVE
PIPELINE SAFETY INSPECTIONS

Although OOE has had moderate success in getting states to make program changes as a result of their annual monitoring visits, it can do little to require a state to implement recommended changes if the state is unable or does not want to do so. If a state is not satisfactorily carrying out a safety program, the legislation authorizes the Department to withhold grant-in-aid funds or withdraw the state's certification and assume jurisdiction over all the state's pipeline systems. Because of its resource limitations and in the interest of public safety, however, OOE has been reluctant to pursue either of these alternatives.

In reviewing the annual evaluations performed by the OOE region chiefs during 1982 (these evaluations covered state agency activities during 1981), we noted state program deficiencies reported in previous years that had not been corrected. For example,

- states had not acquired jurisdiction over all categories of intrastate operators;
- the number of days spent inspecting pipeline operators did not meet OOE's recommended guidelines;
- states were not sending their inspectors to Transportation Safety Institute training;
- states had not adopted all changes to the federal pipeline safety legislation; and
- state inspection visits and results were not well documented.

Deficiencies, such as the ones described above, identified during a monitoring visit are outlined in a letter to the state agency. Although the letters may include recommendations for program improvements, such as increasing or upgrading inspection staff and assuming jurisdiction over additional types of operators, a state may not necessarily implement the recommendations.

Agency officials told us that the two alternatives available to OOE are not effective ways of getting the states to improve their pipeline safety programs. The federal government reimburses states for no more than half the cost of operating a state program, and since 1981 the Department has not reimbursed most states the full 50 percent. If grant funds are withheld, they

believe the likelihood of the state leaving the program increases. Also, programs with less than adequate inspection coverage and insufficiently trained inspectors may be forced to cut back their programs even more if they receive less federal funding. If this happens, the Department in turn might have to withdraw the state's certification and assume jurisdiction over all the state's operators.

Acknowledging its own resource limitations, and in the interest of safety, OOE has not demanded decertification of states that have not corrected program deficiencies. In the past, OOE has threatened states with decertification but it has never gone so far as to decertify a state agency. Should a state leave the program through decertification, OOE would then be responsible for inspecting the operators in the state. However, during Appropriations Committee testimony in March 1982 the Administrator, RSPA, said that OOE could not maintain current enforcement levels if states significantly reduced their efforts because the required levels of inspection activity would be too high for OOE field staff inspectors to meet. Without attempting to quantify the number of accidents that might occur if a state withdrew from the federal pipeline safety program, he said that it was "not unreasonable to project a decided increase [in accidents] would occur in a state with a high level of intrastate gas pipeline activity."

Although the act allows the Department to reject a state's certification after a show-cause hearing, we believe that OOE cannot afford to lose a state's participation in the program, because it lacks the means to assume any additional workload. As described in chapter 2, OOE is already unable to meet its goal of inspecting each operator under its jurisdiction annually. Any attempt to take over additional state programs would further decrease the current level of inspection coverage.

NEED TO BETTER ALIGN FEDERAL RESPONSIBILITIES WITH THE DEPARTMENT'S RESOURCES

We believe there is a need to bring program resources (staffing and funding) in line with program objectives and responsibilities. In this section, we discuss alternatives with regard to federal versus state responsibilities and program funding at the federal level. Some alternatives would require amending existing legislation.

We are not endorsing any particular alternative(s) and recognize that there may be others which present as good or better means of carrying out program objectives. In addition, the Department and the state agencies need to consider the safety risks involved as well as staffing and funding issues in assessing the advantages and disadvantages of these as well as other alternatives. The following are examples of alternatives for possible consideration.

1. Recognizing the limitations of the current program structure, the Department could ask the Congress to amend the gas and hazardous liquids program legislation to eliminate federal responsibility for all, or certain categories of, intrastate pipelines. This would give the states total financial and programmatic responsibility for some or all intrastate pipeline safety. The federal government would retain responsibility for interstate pipelines and would maintain national safety standards for both interstate and intrastate pipelines. But the Department's role in monitoring the state programs could be reduced, or possibly eliminated, since states would have exclusive responsibility for some or all intrastate pipelines.
2. If there is no change in federal-state responsibilities, additional staff and funding will be needed to adequately carry out the federal responsibilities. As discussed in chapter 2, we believe that the Department should consider requiring interstate pipeline operators to set up quality assurance programs. This could reduce the amount of time needed to provide adequate inspection coverage of these operators. There would still be a need for added resources, however, to provide adequate inspection coverage of all intrastate and interstate operators now under the Department's jurisdiction and to implement the management improvements we are recommending in chapters 2, 3, and 4. One way of funding these resource requirements would be to establish fees to cover the costs directly associated with inspections of pipeline operators. Establishing a fee could also provide pipeline operators an incentive to establish quality assurance programs that would reduce inspection requirements.

CONCLUSIONS

The Department does not have adequate resources nor a viable means to carry out its existing program responsibilities. As a result, it has not provided adequate inspection coverage of all the pipeline systems under its jurisdiction and it has been unable to get some states to increase their participation and/or correct deficiencies in their programs.

The Department is responsible for a large number of intrastate pipeline systems and the number could increase. While a few state agencies have continued to expand their programs in recent years, funding problems--including a reduction in the level of federal reimbursements--have caused a number of state agencies to reduce their inspection activities and inspector training. Uncertainty about federal funding also has impacted on the decisions of some states to forego (1) requesting jurisdiction over additional intrastate gas pipeline systems and/or (2) participating in the federal/state intrastate hazardous liquids pipeline safety program that is to be implemented in the near future.

Because a state's participation in the pipeline safety program is strictly voluntary, the Department cannot require the states to assume jurisdiction for additional intrastate pipelines or to comply with recommendations for improving their programs. Legislation provides that if a state is not satisfactorily carrying out a safety program the Department can withhold grant-in-aid funds or withdraw the state's certification. Acknowledging its own resource limitations and in the interest of public safety, however, the Department has chosen to do neither. Therefore, the Department does not have a viable means of requiring the states to increase their participation and/or correct deficiencies in their programs.

Considering the Department's present inspection workload, possible future increases to that workload, and its lack of a viable means to get states to increase or improve their program participation, we believe that if the joint federal/state program is going to be viable, the Congress, the Department, and the state agencies need to consider changes to the present program, both in terms of responsibilities and funding levels.

RECOMMENDATION TO THE
SECRETARY OF TRANSPORTATION

We recommend that the Secretary of Transportation direct the Administrator, RSPA, to develop and present to the congressional oversight and appropriations committees, alternatives to redefine the federal role and responsibilities for assuring the safety of intrastate pipelines, including the hazardous liquids pipelines. These alternatives should propose different combinations of responsibilities for intrastate operators not currently under a state's jurisdiction as well as defining the federal responsibility for assessing state agency programs. Each alternative proposed should include (1) the role and responsibility of both the Department and the state agencies; (2) a discussion of the safety risks associated with the alternatives; and (3) the identification of any legislative changes associated with each alternative. Each of the alternatives presented should also include (1) estimates of the staffing and funding levels RSPA and the states would need to carry out those functions which would be their responsibility and (2) analysis of the impact each alternative would have on inspection activity.

In developing the alternatives, the Department will need more and better inspection workload data, for both the pipelines and pipeline facilities now regulated and those which possibly should be regulated, in order to make the resource needs projection which would accompany the proposed alternatives. Therefore, it will be necessary to carry out certain recommendations contained in the preceding chapters before finalizing the proposed alternatives. The Administrator also should obtain input from the states. To do this, he could utilize the National Association of Regulatory Utility Commissioners.

AGENCY COMMENTS AND OUR EVALUATION

The Department said that it will examine the adequacy of the combined federal/state effort and present alternatives to the congressional committees as we recommended.

SUMMARY OF GAS AND HAZARDOUS LIQUIDS PIPELINEACCIDENT AND CASUALTY DATA REPORTED1973 THROUGH 1983

Report year ^b	<u>Gas pipelines^a</u>			<u>Hazardous liquids pipelines</u>			Commodity loss (barrels)
	<u>Failures</u>	<u>Fatalities</u>	<u>Injuries</u>	<u>Failures</u>	<u>Fatalities</u>	<u>Injuries</u>	
1973	1,364	35	352	273	7	10	377,672
1974	1,477	24	334	256	10	6	292,001
1975	1,373	14	237	254	7	17	318,278
1976	1,579	63	366	212	5	4	249,690
1977	1,996	36	450	237	3	15	224,794
1978	2,088	31	406	256	3	10	280,794
1979	1,970	45	406	251	4	13	548,669
1980	1,996	11	310	219	3	12	289,445
1981	1,623	16	79	239	5	32	214,384
1982	1,711	31	266	200	1	6	221,411
1983	1,580	12	245	161	6	9	384,670

^aAmounts of commodity losses are not reported for gas pipeline failures.

^bThe data shown in this table was compiled by the Department for inclusion in its annual reports on pipeline safety. For the years 1973-80 data from both written and telephonic reports is included. For 1981 the data is from written reports only. Since 1982, however, the Department has included a portion of the data contained in the operators' telephonic reports. For 1982-83 the data is solely from written reports except for "fatalities" which also includes data from telephonic reports.

REPORTED COMMODITY LOSSES RESULTING
FROM HAZARDOUS LIQUIDS PIPELINE FAILURES

1979 THROUGH 1983

<u>Commodity</u>	<u>1979</u>	<u>1980</u>	<u>1981</u> (barrels)	<u>1982</u>	<u>1983</u>
Crude oil	138,163	147,777	76,259	128,018	188,542
Gasoline	25,411	30,277	30,603	40,356	16,761
Fuel oil	34,237	8,783	7,985	4,479	5,701
Jet fuel	3,333	3,214	2,799	5,343	695
Diesel fuel	5,397	2,841	1,241	2,231	16,910
Kerosene	0	8,000	120	1,580	555
Turbine fuel	150	2,382	5,212	0	8,700
Oil and gasoline	1,922	9,794	0	10,474	95
Condensate	584	75	1,352	0	111
Natural gas liquid	14,601	20,798	31,946	3,343	93,555
Liquefied petroleum gas	321,446	50,881	46,974	23,579	49,826
Anhydrous ammonia	3,425	3,606	9,893	2,008	3,219
Unknown	0	1,017	0	0	0
Total	<u>548,669</u>	<u>289,445</u>	<u>214,384</u>	<u>221,411</u>	<u>384,670</u>

PIPELINE SAFETY PROGRAM STAFFING
AND FUNDING INFORMATION AND IMPACT OF
STAFFING CHANGES AND BUDGET CUTS

STAFFING

The Department of Transportation's pipeline safety program is administered by the Materials Transportation Bureau of the Research and Special Programs Administration (RSPA). For fiscal year 1984, the Bureau has the equivalent of 45 full-time staff positions devoted to pipeline safety: 2 in the Bureau's offices of the Director and Executive Staff, 28 in the Office of Operations and Enforcement (OOE), 12 in the Office of Pipeline Safety Regulation, 2 in the Office of Regulatory Planning and Analysis, and 1 was assigned to the Alaska Natural Gas Pipeline Project.

The pipeline safety program also receives support from several offices outside the Bureau. For example, training is provided by the Department's Transportation Safety Institute, legal counsel is provided by RSPA's Office of Chief Counsel, and research and development activities are performed by RSPA's Transportation Systems Center, the National Bureau of Standards, and private laboratories.

The staffing vacancies and turnovers that affected the pipeline safety program the most in recent years occurred in OOE, the Office of Pipeline Safety Regulation and the Transportation Safety Institute.

Office of Operations and Enforcement

OOE is responsible for two programs, pipeline safety and hazardous materials. All personnel assigned to the Pipeline Safety Enforcement Division (4) and the 5 regional offices (21) work full-time on pipeline safety. Staff in the Office of the Director (2) and the Information Services Division (4) divide their time about equally between the 2 programs, thereby accounting for the remaining 3 positions.

Employees assigned to 4 Washington headquarters' positions eliminated in RSPA's July 1982 reduction-in-force (RIF) had been working on pipeline safety program activities part-time. As shown in the following table, three were in the Associate Director's office and one in the Information Services Division.

POSITIONS ELIMINATED IN RSPA's JULY 1982REDUCTION-IN-FORCE

<u>Position</u>	<u>Location</u>
Safety engineer	Associate Director's Office
Safety engineer	Associate Director's Office
Secretary-typist	Associate Director's Office
Emergency response specialist	Information Services Division

Note: One of the safety engineer positions was vacant at the time of the agency's 1982 RIF because the person who had occupied the position left in anticipation of losing the job.

The Pipeline Safety Enforcement Division has four staff positions--a chief, a petroleum engineer, a transportation specialist, and a secretary. With the exception of the petroleum engineer position which was vacant for 7 months, from June 1, 1983 to December 27, 1983, all positions were filled during fiscal years 1979-83. Two division positions were affected, however, by personnel reassignments caused by the agency's RIF. One employee lost his transportation specialist position on July 14, 1982, to another Bureau employee whose management analyst position in the Office of Regulatory Planning and Analysis was eliminated. The RIF'ed employee was hired as a temporary employee July 15, 1982, and then rehired as a full-time employee March 20, 1983, when his successor left the agency. Another employee lost her secretary position to a person from the Office of the Administrator, RSPA, but obtained employment in the Office of Pipeline Safety Regulation.

The OOE regional office staffs generally consist of a region chief, one or more petroleum engineer(s), and a secretary. The following table shows the on-board staffing of the regional offices for fiscal years 1979-83.

As of September 30	On-board staffing		
	Professional	Clerical	Total
1979	14	5	19
1980	16	5	21
1981	15	4	19
1982	13	4	17
1983	17	5 ^a	22

^aThe clerical staff in the eastern regional office has a temporary appointment.

Uncertainty as to the positions to be affected by the agency's 1982 RIF contributed to delays in filling 3 regional office vacancies (see p. 22). A more extensive RIF had been planned earlier, which would have closed 3 of the 5 regional offices and eliminated the pipeline safety training program at the Transportation Safety Institute but these planned cuts were restored after discussions with the National Association of Regulatory Utility Commissioners and meetings between Department officials and members of the House Committee on Appropriations.

According to the Associate Director, OOE, the agency's RIF lowered the morale of the regional office staff and affected their output for about 6 months when there was uncertainty as to what changes would be made in the regions.

Office of Pipeline Safety Regulation

The position of Associate Director for Pipeline Safety Regulation was vacant 2 years, from June 1980 until July 1982. The position was initially advertised in July 1980 and then again in February 1981. In both instances a job offer was made and the selectee declined the offer. The present occupant was reassigned to the position on July 29, 1982, following abolishment of the position he had held in the agency's Transportation Programs Bureau.

The Chairman of the National Association of Regulatory Utility Commissioners' subcommittee on pipeline safety said that prior to filling the Associate Director position there was a problem in obtaining timely responses to requests for waivers and interpretations of the federal regulations. In meetings with representatives of the American Petroleum Institute and the Tennessee Gas Pipeline Company, they made similar comments. The subcommittee chairman gave the example of an operator constructing an LNG facility in Nevada that requested a waiver of certain construction requirements and interpretations of certain other sections of the same regulations. The request, submitted January 2,

1981, was withdrawn on June 17, 1981. In withdrawing the request, the operator said that in order to keep the construction project on schedule it could not wait any longer for the Department to respond and therefore was withdrawing its request.

One petroleum engineer position in the Office of Pipeline Safety Regulation was vacant for 6 months. The staff person left to work on the Alaska Natural Gas Pipeline Project. This person returned, however, when his position on the Alaska Natural Gas Pipeline Project was eliminated during the agency's RIF.¹

All three secretaries in the Office of Pipeline Safety Regulation lost their positions during the agency's 1982 RIF. Two lost their positions to staff from within the Bureau and one lost her position to staff from the Office of the Associate Administrator for Policy Plans and Program Management. (This office was abolished during the agency's RIF.) One obtained another position in the Office of Pipeline Safety Regulation and the other two obtained employment with other federal agencies outside the Department.

Transportation Safety Institute

The Transportation Safety Institute, with OOE's financial and technical support, develops and conducts training on pipeline safety for federal, state, and industry personnel. Since February 1977, the Institute has been authorized two professional pipeline safety personnel, a program manager and a pipeline safety specialist.

The Institute had 3 staff vacancies between March 1980 and January 1983. One vacancy was for a 9-month period, between March 1980 and December 1980. Another was for a 3-month period between June 1981 and September 1981. The last vacancy was for a 1-year period between January 1982 and January 1983.

The latter 2 vacancies occurred as a result of the uncertainty of program funding. The program manager resigned when he was told that the program was being eliminated. He returned for 4 months, only to resign again when it once again appeared that the Institute's training program would be eliminated.

¹Two positions on the Alaska Natural Gas Pipeline Project were eliminated during the agency's 1982 RIF. The other RIF'ed person left the Department.

According to the Associate Director, OOE, the primary effect of these vacancies was a reduction in the number of seminars² held. Twenty-three seminars were held in 1978, 9 in 1979, none in 1980, 13 in 1981, 16 in 1982, and 24 in 1983.

FUNDING

Pipeline safety program funds are budgeted and appropriated under 3 major funding areas--operations, research and development, and grants. Operations funds are used for the management and execution of the program, including salaries and administrative expenses, and are broken out into several functional areas: information and analysis, enforcement, rulemaking, and training. Research and development projects emphasize applied research and provide the technical and analytical foundation necessary to support the Department's rulemaking, enforcement, training, and other regulatory activities involving gas and liquid pipeline safety. The grant funds are used to reimburse states participating in the pipeline safety program for up to 50 percent of their program costs.

RSPA's budget is adjusted based on reviews by the Office of the Secretary of Transportation and the Office of Management and Budget and again following receipt of its appropriation from the Congress. The Office of the Secretary of Transportation and the Office of Management and Budget usually do not instruct RSPA on what individual line items in the budget are to be changed. Instead they provide a dollar amount which is not to be exceeded, either in total or for the 3 major categories of funds--operations, research and development, and grants. The following table shows that portion of RSPA's total appropriation that relates to pipeline safety program funding for fiscal years 1978 through 1984.

<u>Fiscal year</u>	Research and development			<u>Total</u>
	<u>Operations</u>	<u>development</u>	<u>Grants</u>	
	----- (thousands) -----			
1978	\$2,097	\$375	\$2,400	\$4,872
1979	3,784	350	2,820	6,954
1980	2,520	500	2,820	5,840
1981	3,088	739	3,082	6,909
1982	2,825	300	2,434	5,559
1983	2,785	700	3,500	6,985
1984	3,319	645	3,500	7,464

²Seminars are held by Transportation Safety Institute staff primarily for the benefit of industry personnel and are designed to meet the needs of the requestor.

Operations and Research and Development

The Director, Materials Transportation Bureau said that the principal effects of the cuts in RSPA's budgets have been to stretch out ongoing projects or delay the implementation of new projects. The most severe cuts occurred in fiscal year 1982 when RSPA's total appropriation was \$17,441,00; it had received \$31,420,000 in fiscal year 1981 and requested \$34,801,000 for fiscal year 1982. In order to provide minimum funding of activities normally charged to the operations portion of RSPA's appropriation, RSPA management found it necessary to shift \$3,794,000 from research and development and undertake no new initiatives. Several pipeline safety projects were affected. For example:

- Projects involving (1) validating the effectiveness of existing LNG regulations, (2) determining the necessity of comprehensive regulations governing LP gas facilities, and (3) evaluating overall corrosion control regulations were all postponed.
- Ongoing projects involving (1) investigating the use of alternative (fracture mechanics) technology to the existing federal standard for girth weld acceptance, and (2) analysis of failed pipeline system components were suspended during the fiscal year.

The Director, Materials Transportation Bureau said that some of the agency's funding problems are caused when the Congress instructs them to spend more funds on a particular area than they had requested but does not provide additional funding. For example, in fiscal year 1983, the Congress increased the grants-in-aid by \$1 million from \$2.5 to \$3.5 million and in fiscal year 1984, OOE received \$221,000 less than requested for operations but received more than requested for research and development. The reduction in operations funding--\$221,000--was accomplished by reducing pipeline safety operations by \$64,000 and hazardous materials operations by \$157,000.

In fiscal year 1983, budget constraints caused the Bureau to curtail its investigation and analysis of pipeline accidents and to reduce the preparation time for and the length of meetings of the technical safety standards committees for gas and hazardous liquids pipelines. Following receipt of its fiscal year 1984 appropriation, the Bureau made adjustments in some of the same areas as in previous years. Funds for acquiring, testing and analyzing failed pipe were reduced from \$200,000 to \$150,000, as were the funds for revising weld inspection standards. Funds for advisory committee meetings were cut from \$80,000 to \$15,000.

In chapter 2 (p. 22), we discussed how travel fund restrictions affected the regional offices' inspections of pipeline operators. Travel fund constraints also affected regional office operations in the following ways:

- Reducing the regional offices' on site evaluations of the states' pipeline safety programs. For example, in fiscal year 1982 (1) the southwest region had planned to spend 42 days performing these evaluations but was able to devote only 29 days and (2) the eastern region had to postpone visits to 4 state agencies until after the beginning of fiscal year 1983.
- Reducing OOE headquarters' monitoring of the regional offices. In fiscal year 1980, the Chief, Pipeline Safety Enforcement Division visited each regional office to determine if enforcement efforts were being applied uniformly and to identify good procedures used by one region that could be adopted by the other regions. According to the Chief, this monitoring effort was useful. He stated, however, that similar monitoring visits have not been made in subsequent years because of insufficient travel funds.
- One of two region chiefs' meetings scheduled during calendar year 1982 was cancelled. At these meetings, OOE headquarters officials and regional office chiefs meet to discuss various topics, such as inspection and enforcement activities, safety standards, violations, the regulations, and staffing.
- Deferring inspector training and precluding inspectors from attending industry-sponsored seminars. According to the Associate Director, OOE, travel fund restrictions affect the staff's travel to training and seminars because priority is given to travel involving the monitoring of state programs and inspections of pipeline operators. For example, in OOE's central region (1) one staff engineer did not attend a training course on pressure regulators in 1982 or attend seminars sponsored by the American Gas Association in 1982 and 1983 and (2) the region chief did not attend the Morgantown Corrosion School (West Virginia University) education committee meetings in either 1982 or 1983, even though he is a member of this committee.

The Associate Director, OOE, has proposed that seminars be held for regional office inspection personnel expressly for the purpose of ensuring that the regions are consistent in their inspection procedures, enforcement of the regulations, and monitoring of state agencies. He said that no such seminars have been held, however, because of the lack of travel funds. One such conference was scheduled in January 1982 for all OOE pipeline safety staff, training staff, and chief counsel staff to discuss enforcement procedures and experiences. The conference was canceled, however, because of inadequate travel funds. The conference was subsequently held in February 1984 with only selected staff attending.

Grants

The impact of cuts made in the grant-in-aid budgets is discussed in chapter 5--the gas program grants on pages 59-62, and the liquid program grants on pages 62-65.

PIPELINE OPERATORS UNDER FEDERAL JURISDICTIONAS OF JANUARY 1983^a

Category of operators ^b	OOE regions					Total
	<u>Eastern</u>	<u>Southern</u>	<u>Central</u>	<u>Southwest</u>	<u>Western</u>	
Interstate liquid	23	24	67	71	50	235
Interstate gas	15	27	35	34	11	122
Intrastate gas	5	135	-	100	48	288
Interstate and intrastate LNG facilities ^c	<u>5</u>	<u>4</u>	<u>4</u>	<u>2</u>	<u>1</u>	<u>16</u>
Total	<u>48</u>	<u>190</u>	<u>106</u>	<u>207</u>	<u>110</u>	<u>661</u>

^aExcludes gas and liquid offshore, master meter and most LP gas operators.

^bFederal regulations did not cover intrastate liquid operators as of January 1983.

^cIncludes 4 LNG facilities in the southern region and 1 LNG facility in the western region for which the regions have inspection responsibility but the facilities are not shown on OOE's fiscal year 1983 operating plan.

ESTIMATED NUMBER OF MASTER METER OPERATORS
UNDER FEDERAL JURISDICTION
AS OF SEPTEMBER 30, 1983

<u>OOE region/ state</u>	<u>Estimated number of operators</u>	
<u>Eastern</u>		
Massachusetts	386	
New Jersey	No data	
New York	345	
Pennsylvania	1,171	
District of Columbia	85	
Maryland	214	
Virginia	<u>762</u>	2,963
<u>Southern</u>		
Kentucky	<u>1,019</u>	1,019
<u>Central</u>		
Wisconsin	1,317	
Kansas	1,127	
Missouri	<u>245</u>	2,689
<u>Southwest</u>		
Louisiana	2,623	
Oklahoma	<u>2,309</u>	4,932
<u>Western</u>		
Montana	1,046	
South Dakota	966	
Nevada	108	
Wyoming	710	
California	12,935	
Hawaii	No data	
Alaska	<u>28</u>	15,793
Total		<u>27,396</u>



**U.S. Department of
Transportation**

Assistant Secretary
for Administration

400 Seventh St., S.W.
Washington, D.C. 20590

APR 2

Mr. J. Dexter Peach
Director, Resources, Community and
Economic Development Division
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Peach:

We have enclosed two copies of the Department of Transportation's (DOT) reply to the General Accounting Office (GAO) draft report "Need to Assess the Federal Role in Regulating and Enforcing Pipeline Safety," GAO/RCED-84-102.

In this report, GAO concluded that the Department has not provided adequate inspection coverage of all pipelines for which it has been responsible and this problem may worsen. GAO believes that there is a need to reduce the Department's program responsibilities, consistent with its available resources, or to provide additional resources.

GAO recommends that the Secretary of Transportation direct the Research and Special Programs Administrator to:

1. Evaluate and, if the benefits of establishing a quality assurance program outweigh the cost, establish and implement a mandatory quality assurance program for interstate pipeline operators;
2. Complete its inspection workload by dividing all interstate gas and liquid operators into common inspection units, and by including master meter and LP gas operators under its jurisdiction; and,
3. Require Office of Operations and Enforcement (OOE) regions to expand and refine the inspection workload and activity data they maintain and report to headquarters to include, for each category of operator, the number of inspection units subject to inspection and the number of units that have been inspected one or more times during the year, and a breakout of the number of inspections performed by type of inspection.

The underlying question raised by the GAO is the degree of Federal inspection coverage. The planning target of one comprehensive inspection for each pipeline operator per year was an initial target used in the fashioning of the Department's inspection program. With this program having been in place for some time, this initial target needs to be reexamined. Such an assessment would balance adequate maintenance of public safety and resource requirements.

Based on one experience with a large operator with a quality assurance program, the DOT had been unable to draw satisfactory conclusions about the efficacy of such programs. However, the DOT will evaluate the quality assurance program concept and agrees with the GAO that costs and benefits should be properly taken into account.

The DOT believes that the phrase "common inspection unit" should be defined in terms of an operator's administrative structure (span of control and authority) rather than in terms of geographical boundaries, political subdivisions, pipeline characteristics, or any combination of these categories. An operator's administrative structure determines the boundaries of control and communication which in turn limit the commonality of design, construction and maintenance procedures. The DOT intends to use this definition and apply it to all jurisdictional operators. The result probably will be that there will be a different number of inspection units for operators which have the same or similar characteristics other than administrative structure.

The DOT believes that the conclusions drawn from an inspection of one unit are, in the vast majority of cases, directly applicable to an operator's entire system. Therefore, in such cases, the DOT plans to schedule workload not only on the basis of number of units, but also on the basis of prior knowledge of an operator's performance, and of an operator's degree of consistency among inspection units.

Finally, DOT agrees that, taken by themselves, master meter systems do pose a degree of risk. However, within the context of the entire natural gas distribution system nationally, master meters constitute but a small element-- both in terms of size and the extent of hazards they potentially pose. Whatever the level of total resources, how DOT should allocate these resources must, therefore, strike an appropriate balance among the various elements of the total gas system.

If we can be of further assistance, please let us know.

Sincerely,

for 
Robert L. Fairman

Enclosures

DEPARTMENT OF TRANSPORTATION REPLY
TO
GAO DRAFT OF A PROPOSED REPORT OF JANUARY 1, 1984
RCED-84-102
ON
NEED TO ASSESS THE FEDERAL ROLE IN
REGULATING AND ENFORCING PIPELINE SAFETY

SUMMARY OF GAO FINDINGS AND RECOMMENDATIONS

ON

NEED TO IMPROVE INSPECTION COVERAGE

OF PIPELINE OPERATORS UNDER FEDERAL JURISDICTION

Regional office staff is insufficient for Office of Operations and Enforcement (OOE) to meet its goal of performing a comprehensive inspection of each pipeline operator annually. Also, all operators under the Department of Transportation's (DOT) jurisdiction are not included in OOE's inspection workload. If OOE were to require and use operator quality assurance programs, OOE would have more staff time for inspections, but not enough to carry out all its program responsibilities. The General Accounting Office (GAO) did not conduct a cost-benefit evaluation on this concept, but notes that one should be done before requiring such programs.

OOE needs to:

- complete a breakout of the interstate gas and hazardous liquid operators in its inspection workload into common inspection units;
- identify and add to its workload all master meter and LP gas operators located in states that have not assumed jurisdiction over these categories of intrastate operators; and
- expand and refine the inspection workload and activity data the regions maintain and report to headquarters to reflect (1) the number of inspection units subject to inspection and the number of units inspected by category of operator, and (2) the types of inspections (e.g., comprehensive, follow-up, new construction) performed on each category of operator.

The Secretary of Transportation should direct the Research and Special Programs Administrator to:

- evaluate and, if the benefits of establishing a quality assurance program outweigh the cost, establish and implement a mandatory quality assurance program for interstate pipeline operators.
- complete its inspection workload by dividing all interstate gas and liquid operators into common inspection units, and by including master meter and LP gas operators under its jurisdiction; and
- require OOE regions to expand and refine the inspection workload and activity data they maintain and report to headquarters to include, for each category of operator, the number of inspection units subject to inspection and the number of units that have been inspected one or more times during the year, and a breakout of the number of inspections performed by type of inspection.

DEPARTMENT OF TRANSPORTATION POSITION

The underlying question raised by the GAO in this area is the degree of federal inspection coverage. The planning target of one comprehensive inspection for each pipeline operator per year was an initial target used in the fashioning of the Department's inspection program. With this program having been in place for some time this initial target needs to be reexamined. Such an assessment would balance adequate maintenance of public safety and resource requirements.

Based on one experience with a large operator with a quality assurance program, the DOT had been unable to draw satisfactory conclusions about the efficacy of such programs. However, the DOT will evaluate the quality assurance program concept and agrees with the GAO that costs and benefits should be properly taken into account.

The DOT believes that the phrase "common inspection unit" should be defined in terms of an operator's administrative structure (span of control and authority) rather than in terms of geographical boundaries, political subdivisions, pipeline characteristics, or any combination of these categories. An operator's administrative structure determines the boundaries of control and communication which in turn limit the commonality of design, construction and maintenance procedures. The DOT intends to use this definition and apply it to all jurisdictional operators. The result probably will be that there will be a different number of inspection units for operators which have the same or similar characteristics other than administrative structure.

The DOT also knows that the conclusions drawn from an inspection of one unit are, in the vast majority of cases, directly applicable to an operator's entire system. Therefore, in such cases, the DOT plans to schedule workload not only on the basis of number of units, but also on the basis of prior knowledge of an operator's performance, and of an operator's degree of consistency among inspection units.

The DOT agrees that, taken by themselves, master meter systems do pose a degree of risk. However, within the context of the entire natural gas distribution system nationally, master meters constitute but a small element--both in terms of size and the extent of hazards they potentially pose. Whatever the level of total resources, how DOT should allocate these resources must, therefore, strike an appropriate balance among the various elements of the total gas system. [See GAO note 1, page 91.]

SUMMARY OF GAO FINDINGS AND RECOMMENDATIONS
ON
OPPORTUNITY TO IMPROVE FEDERAL OVERSIGHT AND
MANAGEMENT OF STATE PIPELINE SAFETY PROGRAMS

OOE could improve its evaluation of state agency programs. Monitoring forms could be revised and better guidance given to state agencies on completing their annual certification forms. OOE needs to establish minimum training requirements for state inspectors and expand its qualification criteria for them.

The Secretary of Transportation should direct the RSPA Administrator to improve state agency inspection activity reporting and OOE's monitoring of state agency pipeline safety programs by:

- using more performance-oriented measures to evaluate state agency actions in enforcing federal pipeline safety standards. This would include revising the monitoring form to eliminate irrelevant questions, redesigning other questions to provide more meaningful data and developing additional questions to evaluate state program performance.
- Providing the regional offices with additional guidance to assure consistent interpretations of the questions on the monitoring form.
- Updating inspection day criteria used to determine the minimum level of state inspection activity, or establishing new criteria for this purpose.
- Clarifying instructions provided for data collection and reporting by state agencies, particularly for data on inspection days, operators inspected, noncompliances, and enforcement actions.
- Having the OOE regional offices review and advise OOE headquarters as to the accuracy of all program activity data the state agencies are required to submit each year.

In addition, the Secretary of Transportation should direct the RSPA Administrator to establish and assist the states in obtaining the training necessary for each state agency inspector by:

- identifying what knowledge and skills are necessary to conduct effective inspections of operators;
- assessing the needs of the current inspection workforce in the states to conduct effective inspections; and
- determining how OOE can assist the states in coming up with plans and/or funding to ensure that all state inspectors obtain these minimum qualifications within a reasonable time period.

DEPARTMENT OF TRANSPORTATION POSITION

The DOT is in the process of concluding an effort to improve its monitoring approach. A revised form will be used (starting in 1985) with the monitoring reviews for CY 1984. Additional guidance for regional staff will be provided prior to that time. A review is ongoing to revise, if needed, the inspection day criteria--on a national basis. The subject of program activity data, in the broadest form, is a part of this review now under way.

OOE is 50% of the way through a comprehensive review of its pipeline safety training program. The elements in the review include:

1. Compatibility of classes .
2. Curriculum for all classes.
3. Home study materials.
4. Seminar handouts.
5. Prioritization of Transportation Safety Institute equipment needs.

The DOT believes that the knowledge and skills inherent in the TSI training program are the minimum level of competency necessary for a state agency inspector, and that a new inspector should acquire this level within 3 years of assignment as an inspector. Proof of competency is obtained by a testing program initiated in FY 1983, for each course, and by the observance by regional personnel of state field performance. DOT believes that training can best be accomplished at TSI in Oklahoma City. However, to insure that all state inspectors obtain minimum qualifications within a reasonable time period, the DOT will study the practicality of taking the classes to the states.

SUMMARY OF GAO FINDINGS AND RECOMMENDATIONS

ON

POTENTIAL FOR REGULATING ADDITIONAL PIPELINE FACILITIES

RSPA needs additional information to decide whether to expand the pipeline safety program to cover items such as rural gas gathering lines, gas service lines, hazardous liquids storage facilities, and various commodities such as liquefied carbon dioxide, ammonium hydroxide, ethanol, and methanol.

The Secretary should instruct the Administrator, RSPA, to:

- gather and analyze the data necessary to determine whether there are sufficient hazards, involving personal injury or environmental damage, to warrant regulation of rural gas gathering lines, gas

service lines, hazardous liquids storage facilities, and substances transported in liquefied form that are not presently regulated, and

--take appropriate actions to amend the regulations and in the case of rural gas gathering lines and/or gas service lines, propose the legislation needed to provide coverage of those additional pipeline facilities that warrant coverage.

DEPARTMENT OF TRANSPORTATION POSITION

In general, DOT believes that information currently in hand or readily available provides a sufficient basis for decisions as to the necessity for expanding regulatory coverage to additional pipeline facilities.

As part of its investigation of the need to regulate gas gathering lines, DOT, in a March 31, 1983, Federal Register notice initiating a comprehensive revision of its accident reporting requirements, proposed to add new reporting requirements on rural gas gathering lines. Of the comments received on the gathering line proposal, none favored expanding the existing reporting requirements to include rural gas gathering lines. The reasons centered around the relative safety of the lines due to their usually low operating pressures and remote locations. Similar reasons involving low public risk are found in the legislative history of the Natural Gas Pipeline Safety Act and the Hazardous Liquid Pipeline Safety Act (HLPSA) to explain the exclusion of rural gathering lines from the jurisdiction of those statutes. [See GAO note 2, page 91.]

DOT does not agree that more information is needed about the hazards of service lines; there is ample information available about these lines. The main considerations in deciding whether to regulate additional customer-owned service lines are the regulatory impact and the relation between federal and state governments. Extending the safety standards to these lines would mean that every homeowner or business that owns pipe located downstream from the distribution company's main or meter would become an operator that must abide by the standards. DOT believes that if government attention is required for the safety of customer-owned service lines, state and local agencies rather than the DOT should provide that attention.

[See GAO note 3, page 91.]

DOT also believes that sufficient information is available regarding the safety of hazardous liquid storage facilities. MTB is monitoring the need to regulate the safety of terminal storage facilities through its contacts with industry trade associations, professional organizations, the Technical Hazardous Liquid Pipeline Safety Standards Committee, the public, and the media, and through its relationship with the U. S. Coast Guard. For these reasons, MTB believes that regulation of additional hazardous liquid storage facilities is unwarranted at this time. MTB will continue its monitoring activities and take regulatory action as needed.

DOT currently is gathering new information on several unregulated hazardous liquids. By contacts with industry trade associations, professional organizations, the Technical Hazardous Liquid Pipeline Safety Standards Committee, the public and the media, DOT is monitoring events involving the pipeline transportation of liquid substances that could pose an unreasonable risk, such as liquefied carbon dioxide, ammonium hydroxide, ethanol, and methanol. There are relatively few miles of interstate pipelines that would be subject to the HLPISA if an unreasonable risk determination were made for potentially hazardous liquids not now regulated. More information about intrastate traffic in these substances should come to light as DOT establishes its program with cooperating state agencies for the regulation of intrastate petroleum, petroleum products, and anhydrous ammonia pipelines.

SUMMARY OF GAO FINDINGS AND RECOMMENDATIONS

ON

ALTERNATIVES FOR AN EFFECTIVE FEDERAL

PIPELINE SAFETY PROGRAM

The Department does not have a viable means of requiring state agencies to correct deficiencies in their programs. In addition, the Department does not have sufficient inspection staff to inspect all interstate and intrastate operators presently under its jurisdiction annually as is its goal. Because the Department has been inspecting some types of intrastate operators only on an exception basis and some other operators only once every three to five years, GAO believes that the inspection coverage being provided is inadequate.

The federal grant-in-aid program was intended to increase and improve state pipeline safety programs. While a few state agencies have continued to expand their programs in recent years, reductions in the level of federal reimbursements since 1981 have caused a number of state agencies to reduce inspection activities and inspector training. Also, uncertainty about federal funding has impacted on state agencies' decisions about participation in the intrastate hazardous liquids pipeline safety program. If the joint federal/state program is going to be viable, GAO believes that the Congress, the Department, and the state agencies need to consider changes to the present program, both in terms of responsibilities and funding levels.

The Secretary of Transportation should direct the Administrator, RSPA, to develop and present to the congressional oversight and appropriations committees, alternatives to redefine the federal role and responsibilities

for assuring the safety of intrastate pipelines. This would include assigning responsibility for intrastate operators not currently under a state's jurisdiction as well as defining the federal responsibility for assessing the adequacy of and authority to require changes to state agency programs. Each alternative proposed should include (1) the role and responsibility of both the Department and the state agencies; (2) a discussion of the safety risks associated with the alternatives; and (3) the identification of any legislative changes associated with each alternative. Each of the alternatives presented should also include estimates of the staffing and funding levels RSPA would need to carry out those functions which would be its responsibility.

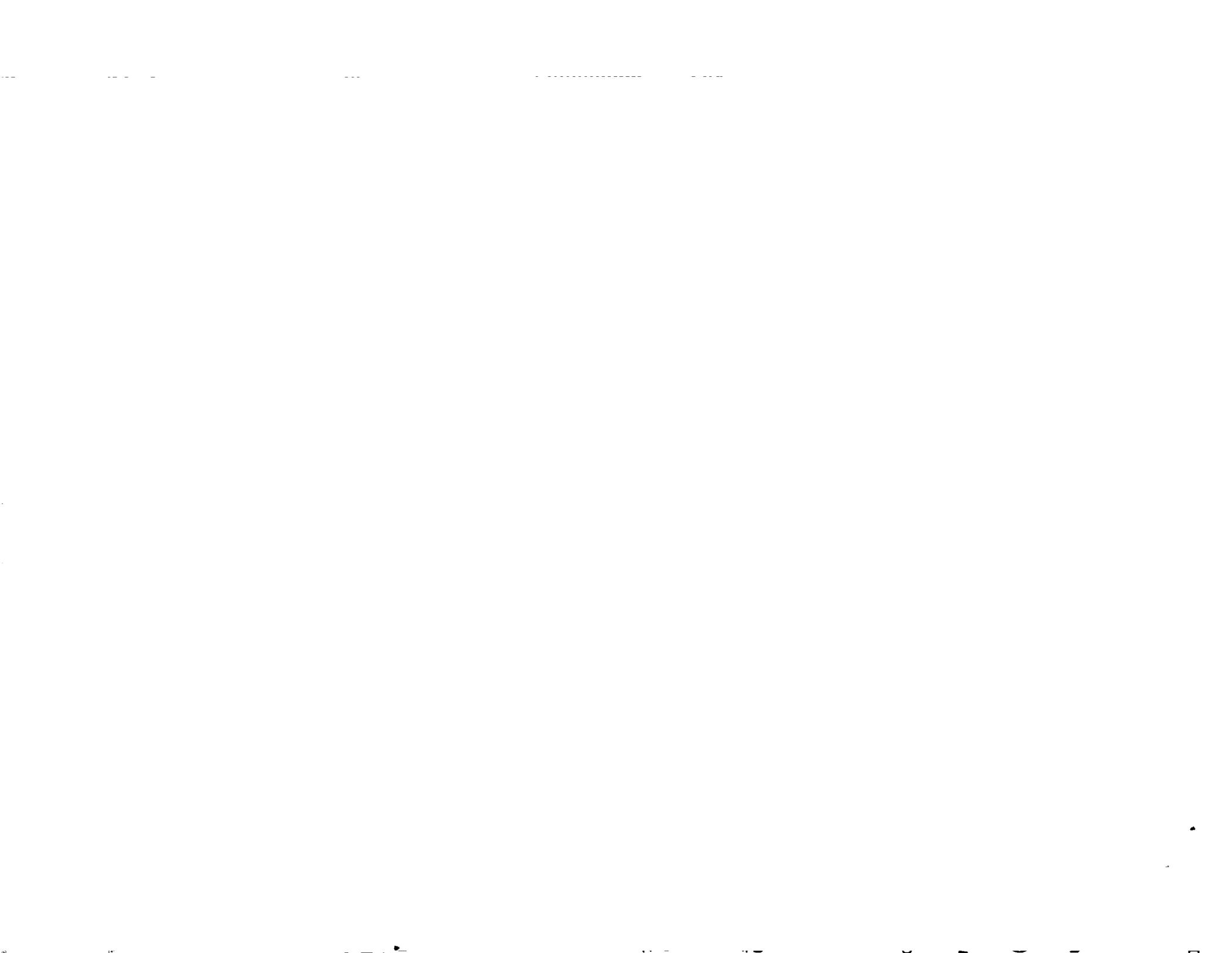
In developing the alternative, the Administrator should obtain input from the states. To do this, he could utilize the National Association of Regulatory Utility Commissioners.

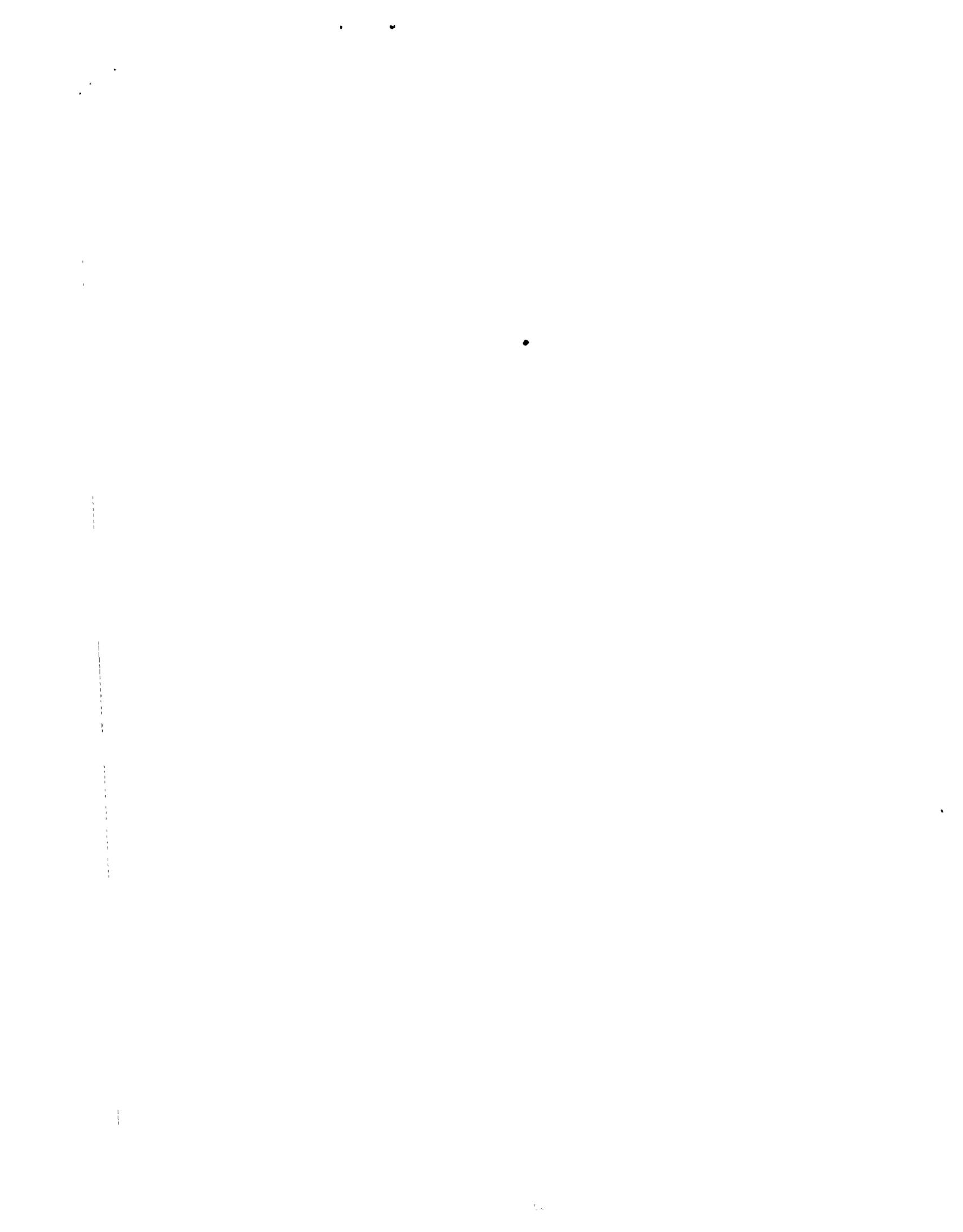
DEPARTMENT OF TRANSPORTATION POSITION

Without a systematic examination of the risks and the costs the DOT cannot a priori agree with the conclusion of GAO that the level of national effort is inadequate, and that, therefore, ways to increase the effort must be found. DOT will examine the underlying question of the adequacy of the combined federal/state effort (as noted in the DOT position on the GAO findings and recommendations on the need to improve inspection coverage). The results will be oriented toward alternatives and will be presented to congressional committees when completed.

- GAO notes:
1. This comment does not address the GAO recommendation, i.e., that the Department complete its inspection workload . . . by including master meter and LP gas operators under its jurisdiction.
 2. The industry's position that rural gas gathering lines are safe because of their low operating pressures and remote locations is not new and was addressed in our draft report, see pages 52 and 53.
 3. Neither we nor the states have suggested that the consumer become an operator subject to the federal standards. The objective is to make the distribution utilities responsible for the portions of the service lines located between the meter and the customer's building.

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